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ARTICLE I.

Missouri and her Railroads.

The policy of enlarging the obligations of the State, to the amount proposed by "An act to secure the completion of certain Railroads," passed December 10th, 1855, is a subject in respect to which the most sagacious and unprejudiced minds might be expected to differ. But no matter how much men may have been opposed to that measure before its adoption, it is now the true policy of every citizen to abstain from all further opposition, and give to the law a cordial, active support.

We seldom indulge in remarks touching the course pursued by conductors of the public press, but we are constrained to say, that, in our opinion, those editors who condemn the action of the General Assembly, and aim to excite indignation against members who voted for this measure, are pursuing a course calculated to bring upon the State the very evils which they seem so much to dread. Confidence in public securities, is a thing of slow growth. It is not sufficient, in the estimation of capitalists, that a State possesses the ability or means to pay its obligations; they must be assured also of the disposition and will of its constituents to sustain its credit under any and all circumstances, before they will purchase its bonds at a fair price.

The State of Missouri has never failed to meet her obligations, and we feel the most perfect confidence that she never will; but she is, comparatively, a new State, and the nature of her resources and the moral character of her people, are not sufficiently known and established abroad to place her credit upon an equal

footing with that of older States. The late act of the General Assembly, authorizing the issue of a large amount of bonds, will be regarded by capitalists as a bold measure, and they will be disposed to examine the elements of credit upon which these bonds are based with much caution before they purchase. It is obvious, therefore, that if newspapers at home continue to condemn the measure, and if the question should enter into the canvass of our popular elections, such conduct on the part of our own citizens will materially affect the sale of the bonds and occasion the loss of much money to the Railroad Companies. So far from such a course, it is obviously the duty of the public press to endeavor to remove any prejudices against the measure which may exist in the minds of the people, and at the same time to collect and publish such facts touching the resources of the State, as are calculated to strengthen and establish its credit abroad.

We have arrived at a point of time in the history of Missouri, when the mere politician must give place to the public economist, and when the interests of the State should be regarded by the people as paramount to party politics. Having entered upon this new order of things, it is important that every individual should have a clear conception of the nature and extent of the State's pecuniary liabilities, of its resources, present and prospective, and, also, of the means provided to indemnify it against loss in case the Railroad Companies should fail to pay the obligations incurred on their behalf.

The subject of public improvements in Missouri was generally and fully discussed for several years, before the State adopted the policy of aiding the chartered companies in constructing the several trunk lines of road, by a loan of its credit. The system of railways projected was a bold one; but intelligent minds were of the opinion that all the lines were necessary to develop the resources of the State, and that unless they were embraced in one system of finance, and carried on at the same time, no one of them could be successfully prosecuted to its completion. This view of the subject was generally adopted by the people, and perhaps no State ever embarked in a system of public improvement, to an equal extent, with so little opposition on the part of its constituents. Contemplating the grandeur of the system, and the benefits to be derived from its accomplishment, new views were opened to the minds of the people; their latent energies were

awakened, and they experienced a pleasing sense of State pride arising from a source to which they had been strangers.

The citizens of other States confiding in the early consumation of these works of improvement, the current of imigration commenced flowing into Missouri as to a newly discovered country; lands advanced in value, and every department of industry received a new impetus. Thus far, the consequences have been as favorable as any reasonable mind could have anticipated. But while the tide of prosperity was swelling under and around them, some of our citizens seem to have become panic stricken at the vastness of the prospect which began to open to their vision, and rather than risk the imaginary dangers of the voyage appear willing to return to their old moorings, and submit to all the disadvantages and inconveniences of a country destitute of improvements. Such timidity arises in part from a lack of knowledge respecting the resources of the State, and in part from vague apprehensions that the works will not be judiciously or honestly managed; and also from the fear that, when completed, the roads will not be worth the amount loaned to the companies by the State. By reference to the law of the 10th of December, we think it will be found sufficiently guarded in its provisions to satisfy the most cautious minds, that, if the Executive and other officers are faithful, the means loaned by the State must be both judiciously and honestly managed; and from facts which we shall endeavor to state with the utmost fairness, we are persuaded that no fears need be entertained that the roads when completed will not be sufficient security for the bonds proposed to be loaned to the respective companies.

In our estimates, we shall regard the guarantee of the $3,000,000 in behalf of the South-west Branch, as constituting a part of the indebtedness, which the State proposes to assume in aid of works of public improvement, making the aggregate $19,250,000, which is distributed among the several roads as follows:

To the	Pacific—main trunk	$6,000,000
"	" South-west Branch	3,000,000
"	Hannibal and St. Joseph Railroad	3,000,000
"	North Missouri	4,000,000
"	St. Louis and Iron Mountain	3,000,000
"	Cairo and Fulton	250,000

These sums, when divided by the number of miles in each road, gives the following amount of State aid to each mile:

	PER MILE.
To the Pacific—main trunk	$21,428
" South-west Branch	10,681
" Hannibal and St. Joseph	14,492
" North Missouri—South of the Hannibal and St. Joseph Railroad	18,000
" Iron Mountain—North of the Iron Mountain	23,225

The official estimates of the length and cost of these roads are, for

	LENGTH.	COST PER MILE.	TOTAL COST.
The Pacific—main trunk	280	$36,786	$10,300,000
" S. W. Branch	282	35,142	9,900,000
The Hannibal and St. Joseph	206.80	30,280	6,268,700
The St. Louis and Iron M'n	86*	47,674	4,100,000
The North Missouri	228.60	39,874	9,091,265

The length of the two southern divisions of the North Missouri road, extending from St. Louis to its junction with the Hannibal and St. Joseph Railroad, is 167½ miles; the estimate in the foregoing table is for the whole line. The cost of the Southern division per mile will probably be something less than the average cost of the whole road.

Will the earnings of these roads when completed pay the interest on the bonds loaned to them by the State? and, finally, when the debt falls due, will they be worth the amount of the principal which may then remain unpaid? This is the first inquiry which occurs to the mind of timid individuals, whose dread of taxes is greater than their State pride, and even stronger than their hopes of profiting by a thorough system of public improvement. We can answer this inquiry only by referring to the earnings of railroads in other States, and, by comparing the extent of our resources and the nature of our trade with districts of countries through which other roads are located.

That we may not be charged with treating the subject unfairly, we will not compare our roads with the great thoroughfares of trade and travel, such as New York and Eire or the Baltimore and Ohio Railroads; but will select such western roads as are, in some respects, similar to our own in regard to trade, resources and location. The Louisville and Frankfort Railroad is only sixty-five miles long, and there is good slack water navigation from Frankfort to the Ohio river; the net earnings of this road, according to

*The length of line South of the Iron Mountain not ascertained.

the report, for the last fiscal year was $1,492 per mile, equal to about 7 per cent. on $21,428, the amont of State credit loaned to the main trunk line of the Pacific road.

The Cleveland, Columbus and Cincinnati Railroad, 141 miles in length, cost $32,242 per mile, and its net earnings per mile during the last fiscal year, amounted to $3,956, equal to about 18 per cent. on $21,428. The New Albany and Salem, a road having no great commercial city at either end, and crossing the great line of trade and travel between the East and West, earned $1,289 net per mile during the last fiscal year, which is equal to about 6 per cent. on $21,428. The average earnings of these three roads, during the last fiscal year, amounts to more than 10 per cent. on $21,428. Without attempting a strict comparison between the location of these roads and the trunk line roads of Missouri, we confidently predict that within two years after the completion of our roads, their average earnings will be equal to the average earnings of the roads above mentioned.

We will not affirm that the business on either of our roads will exceed that of any other road in the United Ststes; but they are all so located that they will not only remain free from competition, but will receive accessions to their business from almost every other road that can ever be built west of the Mississippi. Diverging from a common point and extending to the State line, they will each form the basis of a system in the adjoining States, and as the resources of the great region West of the Mississippi are developed, the business on them will increase to an amount far beyond any calculation which has ever been made by the most sanguine minds. When we regard the city of St. Louis as the great commercial and manufacturing centre of the Mississippi basin, and contemplate the mineral wealth and producing capacity of the soil throughout the regions penetrated by our roads in their extensions North, East, and South, we feel the strongest assurance that within a short time after their completion, they will not only earn the interest on the bonds loaned to them, but besides this, the greater part, if not all, will pay a reasonable if not a large dividend to the stockholders.

But it is apprehended, by some, that our roads will cost too much to authorize the expectation that they will ever pay remunerating dividends. By a comparison with eastern roads, it will be found that New England and New York roads, which divide 8 per

cent. on the capital invested, cost from 25 to nearly 100 per cent. more than ours. The estimated average cost per mile of the five Missouri roads is $36,655. From a tabular statement in the American Railroad Journal, of 5th January, 1856, we have taken the first twenty roads, and find, according to that statement, that the average cost per mile of these twenty roads is $47,134. These are all New England roads, and some of them divided 8 per cent. on the business of the last fiscal year. The New York Central, a name given to a union of several roads constructed by different companies, is 554 miles in length, and cost, according to the statement above referred to, $53,434 per mile, and on this sum the company declared a dividend of 8 per cent. for the last fiscal year, which is equal to about 12 per cent. on the average estimated cost of our roads. The New York and Erie road, 464 miles long, cost over $72,000 per mile. Its net earnings for the last fiscal year is reported at $5,661 per mile, equal to about 8 per cent. on its cost. The Pennsylvania road, 256 miles in length, cost about $67,000 per mile—its net earnings per mile for the last fiscal year was $7,-724, equal to about 12½ per cent. on its cost. We are persuaded that these facts are sufficient to satisfy the mind of the most timid individual that our roads when completed will pay at least a reasonable profit on the cost of construction.

But it is argued by some that there was no necessity at present for the loan of such a large amount of bonds, so long in advance of the time when the money would be needed. In this, we think the General Assembly acted wisely. It was known throughout the Union, and even abroad that our works were in a languishing condition, and it was necessary to make a bold move to show that we were in earnest, and that we had confidence in our own undertakings. This step will give confidence to contractors, and enable the companies to prosecute the work with better economy in respect to the time of completing different sections of their respective lines; it will afford them better opportunities of disposing of their bonds at a fair price; it is calculated to sustain and encourage the immigration of persons and capital to the State, and also to guard against any freaks of future legislation in respect to this subject, which might, by chance, occur. In our opinion, the Legislature has acted nobly, and it now remains for the people to imitate its example by resolving on their part to raise the means necessary to enable the Railroad Companies to avail themselves of the State

loan to its full extent. And if exigencies should arise which require even more than this, let them imitate the example of the city and county of St. Louis, and tax themselves to an amount sufficient to sustain and carry through our entire system of public improvement.

But it is apprehended that the large issue of bonds authorized by the Legislature, will depress the credit of the State. We must admit that, *prima facia*, there is ground for this apprehension, but, when it is shown that she State has made provision for the payment of interest, and has also provided a sinking fund for the gradual redemption of the principal, we are persuaded that there is no ground for this apprehension. Indeed, these provisions are so well calculated to counteract the effects of an increase of the State's obligations, that we think its bonds will be regarded by capitalists with more favor under the present than under the former law. But the effects of the measure on the market value of our bonds will depend in a good degree upon the manner in which the people respond to it. If the people and newspapers should continue to express dissatisfaction with the law, it will make capitalists more cautious in purchasing our bonds, which may fall so low that it would be ruinous to dispose of them ; but, if a firm determination is manifested by all parties, not only to sustain the law, but to supply the means necessary to complete the roads within a reasonable period, there is little doubt but that our State bonds will rise in the estimation of capitalists at home and abroad. Hence, it is the true policy of those who are more immediately interested in our public works to act promptly, and make a vigorous effort to obtain subscriptions to an amount sufficient to secure the completion of all the roads. Could this end be accomplished within a short time, it would give completeness to the entire scheme of public improvements in Missouri. Such a result would challenge the admiration of people abroad, and afford proof that in boldness of conception, energy and moral courage, the people were equal to and worthy of the mighty resources with which the State has been endowed by nature. The private and corporate subscriptions must be enlarged before the roads can be completed, and if the effort to obtain the necessary amount is delayed until it is actually needed, the work may be suspended, and serious losses sustained by the companies as well as by contractors. In our opinion, the State has done enough for these roads, and the peo-

ple along the respective lines, who will be most benefitted, can and ought to furnish the means necessary to complete the work, and the sooner they do it the better. Let them raise the amount required by county subscriptions, and, admitting that their stock should be worthless, they will be abundantly remunerated by the pecuniary and local benefits flowing from these improvements. It would be useless to give instances of the increase of wealth and population occasioned by the construction of railroads in other States; they are familiar to all who read the public journals, and to us, it is one of the wonders of this wealth-seeking age, that the owners of the soil in the rural districts do not invest their means in the construction of railroads, simply with the view of increasing the value of their estates. No other use which they could make of their money would be so profitable as a speculation, even if they received no dividends from the roads. But it seems that neither the prospect of increasing the value of their property, nor the facilities of traveling and transportation afforded by railroads, are sufficient to induce the people of the interior to assist, except to a very limited amount, in carrying on works of public improvement. By reference to the report of a committee, appointed by the Legislature to examine into the condition of the various Railroad Companies, we find that the whole amount subscribed by individuals and corporations, to the four roads leading from St. Louis, is $7,843,330, and of this sum $5,536,200, about three fourths of the whole, was subscribed in the county of St. Louis; and yet the people of this county are willing to abide the consequences of the late law, and pay their proportion of any taxation which it may occasion.

It is obvious that the people in the rural districts have not taken a correct view of the general and special benefits to be derived from railroads, for they act as if they believe the city of St. Louis would enjoy the principal, if not all, the benefits of the lines commencing at this point. Without entering upon a comparison, it may be affirmed that the value of real estate, and the profits of industry, are enhanced in a much greater degree in the interior than in cities by the construction of railways. The profits gained by the farmer by reducing the cost or transportation are as permanent as his land; but not so with the merchant and manufacturer of the city, for as fast as the area of their trade is extended, competition flows in and prevents an increase of profits.

Hitherto the people of the interior have looked to St. Louis for too much, and nobly has this city responded to their expectations: perhaps no other city in the Union has done so much for the cause of public improvement in proportion to its means. If the people and corporations of all other parts of the State will only raise an amount equal to that subscribed in St. Louis County, it will be nearly sufficient to comp'ete our entire system of trunk line roads, and we should do them injustice to doubt their willingness, to come up to this point promptly and cheerfully.

That our readers may have an opportunity of judging of the provisions of the Act, of 10th December, 1855, for themselves, we copy it entire, and respectfully invite all who feel an interest in the public improvements of Missouri, to give it a careful perusal.

AN ACT to secure the completion of certain railroads in this State.

Whereas, At the session of 1850—'51, and of 1852 and '53, certain acts were passed, loaning the credit of the State to the Pacific Railroad, and the South West Branch thereof: the Hannibal & St. Joseph Railroad; the North Missouri Railroad, and the Iron Mountain Branch of the Pacific Railroad—now transferred to the Iron Mountain Railroad; in the whole, amounting to the sum of nine million dollars, in bonds of the State, as therein mentioned; and, whereas, the amount so loaned, together with all the private stock that can be raised from subscriptions, is insufficient to complete the aforesoid roads: and, whereas, for the amount of State credit so loaned to each road respectively, the State hold a statutory mortgage upon each road, which is a prior lien thereon, and, whereas, it is deemed important and to the interest of the State, that the aforesaid roads should be completed in the shortest practicable time; and, whereas, it appears that the State's prior lien is an impediment to the credit of the several companies in raising further large sums, which are necessary to complete their roads, while the present loan, with all the private stock as aforesaid, bound under the State's prior lien, will not amount to one half of the amount necessary to complete said roads; therefore,

Be it enacted by the General Assembly of the State of Missouri, as follows:

SECTION 1. That after either or any of the Railroad Companies, to which the credit of the State has been loaned, under the provisions of the acts of the General Assembly of this State, entitled, "An act to expedite the construction of the Pacific Railroad, and of the Hannibal and St. Joseph Railroad," approved February 22, 1851, the act entitled, "An act to accept a grant of land made to the State of Missouri, to aid in the construction of certain railroads in this State, and to apply a portion thereof, to the Pacific

Railroad," approved December 25th, 1852, and the act entitled, "An act for the benefit of the Pacific and other Railroad Companies," approved February 10th, 1855, shall have drawn and expended the whole amount now authorized to be loaned to each or either of said roads respectively, as in said acts are mentioned and contemplated, and the fact thereof is satisfactorily shown to the Governor, a further loan of the credit of the State, in her bonds, under the same conditions and manner (except as hereinafter modified and changed) as prescribed by the said acts or either of them, is hereby made as hereinafter prescribed to each of said companies respectively, to an amount which shall not exceed in the aggregate to all of said roads, enumerated in the preamble to this act, the sum of seven millions of dollars, exclusive of the former loans as aforesaid.

SEC. 2. The loan of the State's credit under this act shall be, and it is hereby declared to be upon the condition of a first lien or mortgage, as contained and reserved in the act of February 22d, 1851, hereinbefore recited, and the same shall in all respects be held to be an extension of the loan of State credit, under the said mortgage provisions, securing the State in this as in the former loan, upon the same equal and unrestricted basis, as to each and every bond of the State so issued, under such acts or either of them.

SEC. 3. The facts to be presented of proof of investment, the manner of proof required to be made to the Governor, the form and provisions of the bonds to be by him issued, and delivered to any of said railroad companies, shall be the same as in the several acts hereinbefore recited, except as to the amount shown to have been invested in the construction of the road from private stock, or sources other than the proceeds of State bonds, and not secured by a prior line to that of the State on the road and its appurtenances.

SEC. 4. Upon the application of any of said companies, with the proof of the investment of any sum in the actual construction and equipment of the trunk line of the railroad, from sources other than the proceeds of the bonds of the State, and not secured upon the road by a prior lien to that of the State's as aforesaid, and verified by the affidavit of the officers of the company, as required by the acts hereinbefore recited, it shall be the duty of the Governor of this State to sign and deliver to each company an amount in the bonds of the State, equal to twice the amount so proven to have been invested in the construction and equipment of said road, since the last application and issue of bonds to such company; and successively, from time to time, upon the application for bonds and proof of investment, as aforesaid, the Governor shall issue and deliver, in like manner, bonds to such company, until the aggregate amount to each company respectively, under the provisions of this act, shall be as follows, to wit: To the Pacific Railroad Com-

pany the aggregate amount of two millions of dollars; to the Hannibal and St. Joseph Railroad Company, the aggregate amount of one and a half million dollars; to the North Missouri Railroad Company, the aggregate amount of two millions of dollars, one million of which shall be exclusively applied tothe construction of said road north of the junction of the Hannibal and St. Joseph Railroad, on the principles herein provided; and it shall be the duty of the Governor of this State to issue and to expend, himself, or by an agent, to be appointed by him, the other million of dollars hereby granted to said Company, for the purchase of railroad iron necessary to lay the track of said road between St. Charles and the Hannibal & St. Joseph Railroad, and the rolling stock for the same; and said iron and rolling stock, so purchased, shall belong to the State until placed upon the track for use, after which time the State shall have a first lien on said iron and rolling stock, together with all the road and its equipments, constructed and to be constructed, for the security of the payment of the principal and interest of said bonds, and all bonds issued or that may be issued to said Company, under this or any former act of the Legislature, granting the credit of the State to this Company, and the State shall have power to enforce said lien on said road, for failure on its part, to pay punctually, principal and interest on the bonds issued for its benefit, as herein and heretofore provided for in such cases; and to the Iron Mountain Railroad Company, the aggregate amount of one and a half millions of dollars, one million of which shall be exclusively applied to the construction of said road south of the Pilot Knob; *and provided*, the bonds of the State, contemplated by this act to be issued to the Railroad Companies aforesaid, shall be thirty-year bonds in sums of not less than five hundred nor more than one thousand dollars each, at a rate of interest not higher than seven per cent., payable semi-annually: *Provided further*, that the Hannibal and St. Joseph Railroad Company shall not itself, nor by arrangement or contract with any other Company, make, construct or use, or cause to be made, constructed or used, any branch, cut-off or connection with the said Hannibal and St. Joseph Railroad within forty miles of its eastern terminus, whereby trade or travel may be diverted from the located route and track of said railroad, or from its eastern terminus. And all acts or parts of acts, whereby any branches, cut-offs, or connections, could be made, within the forty miles aforesaid, by said Railroad Company, are hereby repealed, and all acts of incorporation or others, whereby any road could be built which would have the effect of drawing off the trade or travel, as would the branches, cut-offs or connections, provided against, are hereby repealed. The act incorporating the Mississipi Valley Railroad North, excepted.

SEC. 5. In addition to the provisions already made, by law, for the payment, by said Companies, of the interest and principal of the bonds of the State, hereafter to be issued, under this or any

former law, for the benefit of the Railroad Companies, in this act mentioned, there shall be paid by the Companies, respectively, to the Treasurer of this State, one and a quarter per cent. in each year, on each thirty-year bond; and two and a half per cent. in each year, on each twenty year bond, so sold, or hypothecated: the first year's payment to be made within sixty days after the sale or hypothecation of each bond; and such other annual payment, on the first day of January in each year thereafter; which per centage shall be invested, at not less than seven per cent. interest, in such securities as are provided for in this act; and, also, from the net profits arising from said roads after the same shall be completed and in operation, respectively, a sum equal to not less than ten per cent. per annum upon the net earnings of said roads, which said sums so paid to the Treasurer of the State shall constitute a Sinking Fund, for the purpose of paying the bonds of the State so issued and to be issued as aforesaid, at maturity to said Companies respectively.

SEC. 6. The Treasurer of each Railroad Company, and the Treasurer of the State of Missouri, for the time being, shall be the Commissioners of said Sinking Fund for said railroads, respectively, and it shall be the duty of each Railroad Company mentioned in this act, respectively, to pay to the Treasurer of the State, thirty days before the semi-yearly interest or coupons on said State bonds fall due and payable, the whole amount of such semi yearly interest or coupons due and payable from such Company, respectively, or file with the Treasurer, the coupon itself as redeemed and paid, and it shall be the duty of the Treasurer of the State, with the advice and consent of the Governor of this State, to select one place in the city of New York, and make publication thereof, at least thirty days before the maturity of said semi-yearly interest or coupons shall be paid; and it shall be his duty to remit the same by the maturity of said coupons or semi yearly interest; and on failure of any Railroad Company mentioned in this act, to remit the amount of said semi yearly interest or coupons to the Treasurer of State, as required by this act, it shall be the duty of said Treasurer of the State to supply the amount from the State Treasury, and remit the same and refund the amount from the Sinking Fund, and charge the defaulting company therewith; and such defaulting Company shall not draw any further State bonds, under this or any former law, until the amount of such default, with interest thereon, shall be fully settled and reimbursed by such defaulting Company, as well as all exchange or premiums necessarily paid in such remission.

SEC. 7. The said Commissioners shall have the control, care, and management of all the moneys, funds and securities at any time belonging to said Sinking Fund; but the moneys uninvested, and all the securities of said funds shall be in the custody of the Treasurer of the State.

SEC. 8. The said Commissioners shall, from time to time, invest the moneys on hand in the bonds of this State, unless the price of such bonds shall, in their judgment, and in that of the Governor of this State, for the time being, make it prudent to invest the same in other safe securities, when the same shall be invested in such securities, with the written consent and approbation of the said Commissioners and the Governor.

SEC. 9. It shall be the duty of the Secretary of the several Rail road Companies in this act contemplated, semi-annually, and at least thirty days previous to the maturity of any interest, or the principal of any State bond negotiated, and sold by their companies, respectively, to render an account to the Fund Commissioners of the State bonds sold by the Company, and showing the number of bonds and description, by numbers of the bonds previously sold, the amount of interest maturing, and the time and place of maturity of both interest and principal.

SEC. 10. The said Commissioners shall keep a true record of all their proceedings; and they shall, annually, on the first Monday of February, make a report to the Governor, to be by him laid before the General Assembly of the State, at the next session thereof, setting forth their proceedings, the amount and condition of the fund for the year preceeding the incomes of the several parts thereof, a detailed account of the securities belonging thereto, and generally a statement, exhibiting the compliance or non compliance of the Railroad Companies with the requirements of this act; and the said records and the securities of the said fund, with the books of accounts belonging thereto, shall, at all times, be open to the inspection of the Governor, or of any committee of the General Assembly of the State.

SEC. 11. That the Pacific Railroad shall be located west of Jefferson City, on the inland route through Johnson county, not passing north of Warrensburg, to such point in Jackson county, on the western boundary of the State, as shall be designated by said Company, as required by the act entitled, "An act to aid the construction of the Pacific Railroad," approved March 3d, 1855.

SEC. 12. There is hereby constituted a Board of Public Works, to consist of three members, who shall hold their offices for the term of four years, aed who shall be elected by the qualified voters of the State, at the general election in the year 1856, and every four years thereafter, and who are not interested as stockholders in any such roads; but the first Board of Public Works shall be appointed by the Governor, by and with the advice and consent of the Senate, and who shall hold their offices until the first Board of Public Works shall be elected and qualified, as provided for by this act; and it shall be their duty, from time to time, as may seem to them necessary, or as they shall be required so to do by the Governor, not less than once in each year, to inquire into the construction and management of each of the Railroad Companies in

the State of Missouri, and for that purpose shall have access to the books and papers of said companies; and said Board shall, at least once a year, report to the Governor whether the materials used in such road are of the best quality and best adapted to the construction of a first-class Railroad, and all other material particulars, as to the construction and management of each of the companies; and for that purpose may call to their aid a competent engineer, who shall receive such compensation, while in actual service as may be agreed upon between the said engineer and the said Board of Public Works, and approved by the Governor; and in case said Board or any of them, shall have reason to believe that either of said companies have not made their expenditures and conducted their affairs in good faith, it shall be their duty to report the same to the Governor, who shall thereupon cause such further examination into the construction and management of such Company to be made as may seem to him necessary, to enable him to judge fully of the matter; and in case the Governor and a majority of the said Boord are of opinion that the expenditures of such Company have not been made in good faith, in the spirit of this act, the Governor shall withold tve further issue of State bonds authorized by this or former acts of the General Assembly, from such Company, and, through the judges of the Supreme Court, shall enjoin the funds in the hands of the Commissioners—provided for in section five of this act—until such Company shall have rectified and remedied such misapplied expenditures, in a manner satisfactory to the Governor and a majority of said Board. Said Board shall be paid by the State at the rate of five dollars per day for each member of the Board, for each day when on duty, and travelling expense; and the Board of Public Works shall be commissioned by the Governor, and before they enter on the discharge of their duties, shall take an oath to support the Constitution of this State, and faithfully and impartially discharge the duties of their office.

SEC. 13. The President, Vice-President, Treasurer, Secretary, Engineer, or assistant Engineers of any of the railroads mentioned in this act, shall not be contractors or sub-contractors at any time, on said road, or in any way whatever interested in any contract of any such contractor or sub-contractor.

SEC. 14. The County Court of any county, on petition in writing, or a vote of a majority of the tax-payers of any congressional or municipal township or townships, shall take any amount of stock in the aforesaid railroads, that said petitioners or voters may request, which said amount of stock shall be raised by taxation on the property in said township, in the same manner and under the same regulations as are provided by law in the case of subscriptions by counties; and the County Court shall appoint a suitable agent to make said subscriptions in the name of the county, for the use and benefit of said township or townships.

SEC. 15. Whenever any Railroad Company will provide for the interest on any county bonds, in anticipation of their being issued under the present law, it may be lawful for any county Court of any county, which may have subscribed stock in any Railroad Company in this State, to be taken in bonds, to issue the same to the full amount of said subscription, at any one time, and to bear interest, not exceeding ten per centum per annum, payable semi-annually.

SEC. 16. It may be lawful for any County Court, of any county in this State, having overflowed or swamp lands, to subscribe the same as stock to any Railroad which may pass through such county, upon such terms, and to be valued at such price as may be agreed upon by the County Court, and the directors of the Rail Road Company in which such stock may be taken.

SEC. 17. Each and every person, who, before the third day of March, 1855, may have innocentiy and in good faith settled upon and improved any lands granted to the Pacific Railroad Company, by the act of Congress and laws of this State, outside of the six miles on either side of said Railroad, with a view and intention of living upon or cultivating the same, upon satisfactory proof thereof in form and manner as prescribed by existing laws for proof of right of pre-emption, shall have the privilege of exchanging neighboring lands of as good quality, or by paying the difference in money (improvements excepted) for such lands so settled or improved, not exceeding one hundred and sixty acres, which shall be contiguous, forming one body of land by legal subdivisions in both instances, or such persons may elect to take a like quantity of land so settled or improved by pre-emption under said existing laws, and shall have the right thereunder to purchase the same at two dollars and fifty cents per acre. Any right of exchange or pre-emption under the provisions of this section, shall be transferable; provided that such proof and election shall be made on or before the first day of December, 1856, and provided further, that if any disagreement shall arise as to the relative value of any such lands, proposed to be exchanged, the circuit court of the proper county shall appoint three disinterested persons, as commissioners, who shall report to the said court their decisions thereon under oath, which may be approved or set aside, and new commissioners appointed, as the court may think proper, until a fair decision is approved.

SEC. 18. That after the Hannibal and St. Joseph Railroad shall be completed, equipped and in operation, said road shall be required to pay into the treasury of the State the surplus proceeds of all land sales or such other securities as may be provided by the Company, in a deed of trust, or otherwise, in a place to be adopted by said Company, to raise funds to complete the road, to be applied by the Treasurer to the retiring of the bonds of the State, ssued and loaned to said Company under this or former acts.

SEC. 19. That the North Missouri Railroad Company, and the Hannibal and St. Joseph Railroad Company, shall adopt and use for their respective roads, the guage, or width of track between the rails, which now prevails in the State of Iowa; which guage, when so adopted by said companies, shall be and become the guage to which all Railroads to be built in this State, north of the Missouri river, shall conform, any law to the contrary notwithstanding; and the North Missouri Railroad Company may, any law to the contrary notwithstanding, adopt the said guage, if it shall so elect, for that portion of its road lying south of the Missouri river.

SEC. 20. The Pacific railroad is hereby authorized to mortgage the Southwest Branch of its railroad, and to include in said mortgage all the lands granted by the Congress of the United States, to the State of Missouri, by act of Congress, approved June 10th, 1852, and by the State of Missouri granted to the said Pacific R. Road, for the construction of the said South-west Branch, by an act approved December 25th, 1852, to secure the payment of bonds authorized to be issued by the said Pacific Railroad, to an amount not exceeding ten million dollars; which mortgage shall be a lien, as well on the said lands, and on the said South west Branch Rail Road, as the same may be at the date of such mortgage, as on all additions, improvements, constructions, erections and appurtenances, added to the same at any time after the date of the said mortgage.

SEC. 21. When it shall be proven to the Governor of this State, by the affidavit of the Treasurer and two of the Directors of the said Pacific Railroad, that the sum of fifty thousand dollars has been expended in the construction of the said South-west Branch Railroad, on the First Division thereof, extending from Franklin to a point on said line of road, twenty five miles Westwardly from the junction of the little Piney with the Gasconade river, the Governor of the State shall endorse upon the bonds of said Pacific R. Road, issued in pursuance of, and secured as provided in the last preceding section of this act, a guarantee for the payment thereof, to the amount of one hundred thousand dollars; and when it shall, in like manner, be proven to the Governor as aforesaid, that the further sum of fifty thousand dollars, together with the proceeds of the one hundred thousand of guaranteed bonds, has, in like manner, been expended, then the Governor shall endorse the guarantee of the State upon other one hundred thousand dollars of said bonds; and so on, as often as said Pacific Railroad shall expend on said First Division of said road the sum of fifty thousand dollars, together with the proceeds of all bonds previously guaranteed, the Governor shall endorse the guarantee upon other one hundred thousand dollars thereof, until the First Division of said South-west Branch is completed; *Provided*, the amount of bonds to

guaranteed shall not, in the aggregate, exceed the sum of three millio-n of dollars.

SEC. 22. For the purpose of constructing the said South-west Branch, the said Pacific Railroad may sell or dispose of said bonds provided for in the two last preceding sections, at the best price and upon the best terms that can be procured therefor, but none of the proceeds of said guaranteed bonds shall be applied or used other than in the construction of the said First Division of the said South-west Branch, and none of said bonds, whether guaranteed or not, shall be applied or used by said Pacific Railroad, other than in the construction of said South-west Branch.

SEC. 23. For the purpose of enable the said Pacific Railroad to avail itself of the best market for the sale of said last mentioned bonds, whenever the President of said Railroad shall notify the Governor of any negotiation for the sale of any amount in larger amounts than one hundred thousand dollars, or at times when the said Railroad shall not be entitled to the guarantee of the State, as aforesaid, the Governor may endorse the guarantee of the State upon said bonds to any sum within the amount by this act restricted, and deliver said bonds to the purchaser, and receive the proceeds thereof, and place the same in the Treasury of this State; and if at any time the said Pacific Railroad shall furnish proof of expenditure, to entitle it to the endorsement of the guarantee as herein provided, at a time when any money arising from the sale of said bonds is in the Treasury of the State, the Governor shall withhold from the amount of the bonds so to be guaranteed, any bonds guaranteed in advance of such proof, in pursuance of the provisions of this section, and pay to the said Pacific Railroad, in lieu of such guarantee, the amount so remaining in the Treusury of the State, the proceeds of said bonds.

SEC. 24. In case any contract shall be made for iron or other material, for the construction of said South-west Branch Railroad, by the said Pacific Railroad, upon such material being delivered the same may be considered as an expenditure, under the foregoing provisions, but such iron or material shall remain the property of the State until the same shall be placed in the track or permanently fixed upon the said road.

SEC. 25.—See Note at the end of the Act.

SEC. 26. It is made the duty of the Treasurer of the State to accept the trust created by said indenture of mortgage, and to execute the same and affix thereto his seal of office, and to receive and disburse all moneys coming into his hands by virtue of the trust created by said indenture, in pursuance of the provisions and covenants of said indenture in all things.

SEC. 27. That the loan of the credit of this State, of one million of dollars, to the South-west Branch of the Pacific Railroad, under the provisions of an act entitled, "An act to accept a grant of land made to the State of Missouri, by the Congress of the U.

States, to aid in the construction of certain railroads in this State, nad to apply a portion thereof to the Pacific Railroad," approved December 25th, 1852, is hereby transferred to the construction of the Pacific Railroad, West of Jefferson City, upon the conditions and limitations and in addition to the amount provided in section four of this act.

SEC. 28. In case the Pacific Railroad fails to complete the said first division of said South-west Branch, in three years from the passage of this act, or to pay the interest on said guaranteed bonds, or to hold the State harmless from said guarantee, then, and in that case, the said South-west Branch Railroad, the lands appropriated to the construction thereof, belonging to the Pacific Railroad Company at the time of such default, and all appurtenances and franchises, shall at once, by operation of law, and without any process or proceeding, become the property of the State, subject only to the aforesaid mortgage. And the Governor of the State, upon the failure of the said Company to perform all or either of the above conditions, may take possession thereof in behalf of the State, and manage and control the same until otherwise disposed of by act of the Legislature.

SEC. 29. This act shall not take effect as to either of said Companies, except to that Company, or Companies, that shall, within six months after the passage of this act, signify its acceptance of the provisions of this act applicable to the Company so accepting, by resolution of the Board of Directors, certified under the corporate seal of said Company; which said acceptance shall be filed with the Secretary of State.

SEC. 30. The Railroad Companies in this act mentioned shall not run trains on the first day of the week, commonly called Sunday, except a single train each way, for the conveyance of the mails, and for every violation of this section, shall, upon conviction, be fined in any sum not less than one, nor more than five hundred dollars.

Note.—

SECTION 25 contains a form of the mortgage to be made by the Pacific Railroad Company of its lands, and of the South-west Branch, to secure a loan of $10,000,000. The conveyance is to be made to the Treasurer of the State, and the form contains a provision that the Company may sell any part of the land conveyed, except such as may be necessary for the use of the road, and when payment is made to the Treasurer, he shall join in a conveyance, and shall hold, or invest the proceeds of such sale for the purpose of paying the bonds intended to be secured by the mortgage.

ARTICLE II.

Anthropological Disquisitions.

BY PROF. THEO. C. HILGARD.

"The proper study of mankind is man."

NATURE OF ANTHROPOLOGY.—Anthropology—"man-lore"—is the science or inductive philosophy of man. It forms the focus of interest for all other sciences, for only by their bearing on man's intelligent and physical existence the others are. All sciences being the results of man's conscious faculties, they form various realizations thereof; hence they form, as it were, collections of certain results of man's observing and cogitative faculties. As such they at once assume a character of their own, while they form subdivisions of the great universal lore—"to know ourselves." They originate in the human interest, and stand isolated and fruitless, unless united by it as a powerful common centre, a radiating fountain as well as circumambient sphere of vital interest.

Man-lore being the fountain head of science, it is emphatically the science of *progress*, starting, absorbing and fusing the interest of all separate ones from and into one common, mutual and central one.

CHARACTER OF NATURAL HISTORY. — In respect to the other sciences, it is what natural history is to mineralogy, botany and zoology. These latter, in their isolated existences, are only vast storehouses of matter of fact, of phenomena without the connecting ideas. Their treasure is within the hand-books. But the interest—the "philosophy" or "humor of it"—(*Shakespear*)—unfortunately finds no place there. The living interest and the living starting-points, the observation of the activities and economy of plants and animals, remain alike shut up within the souls of their devotees. The proper repository of their intellectual motives, of their conceptions and observations on the economy of beings and of nature, is *natural history*.

WAS NEGLECTED.—It was rather by the rapid accumulation of new material, than from a want of genius, that natural history made so little progress, and almost fell into disrepute. Formerly the works on natural history were made also, more or less, to supply the hand-books, which gave it the character of imperfection either way. The hand-books have come forth independently as its

magazines of raw material. Let the "economy and philosophy of nature"—real natural history—come forth independently, too, and perform its higher mission of assimilating a dead mass of facts into the vital body of humanitary interest.

Humanitary Spirit.—Such is the tendency of our great cosmologists, and the writer of natural history belongs to their denomination. Schouw and Humboldt, have started some of the contingent ideas as separate branches of both natural and humanitary sciences. We only mention: the distribution—"geography"—of plants, the impressiveness—"character"—of vegetable forms—blending into a conscious science relations of botany and geography to sentiment, poetry, art, and material progress, and proclaiming the harmony of the universe in the various manifestations of its Upholder.

All our great naturalists have taken up the spirit of which Humboldt himself was but one receiver. So has Oersted, the discoverer of the relation between magnetism and electricity. So has that unique institution of scientifically humanitarian progress, of which the Union so well can boast: the U. S. Coast Survey. Of such nature are the marine researches of Lieut. Maury, who succeeded to give a humanitarian and scientific expression to that dead mass of hand-book facts: the marine log-books. In one word, the idea has begun to animate dead knowledge.

Object of Anthropology.—The object of anthropology is to demonstrate, in a scientific way, what might be established as the common, essential and generic in man; in other words: mankind's essential relations to the manifest world, conscious and physical.

Man as a Natural Object.—In his physical nature, man comes under the consideration of natural history. He is intimately allied to those physical beings that form the object of natural history. To it four sciences are contingent.

Realm of Efformations.—All four, mineralogy, botany, zoology, and part of anthropology, treat of those things of nature, that present *typical forms from inherent*—not merely mechanical—*motives*.

Lifeless Types.—Mineralogy is characterized by its chemical components, texture and crystallization. They are no mere effects of mechanical conditions—such as hitherto established. The chemist's laboratory produces many more of the kind, and, together with the productions of nature's chemical workshop, they form only

one great kingdom. But only the latter are "natural" productions.

ARTEFACTS.—In zoology and botany, the results of *human efforts* on plants and animals form an essential part, as for example, their utilization, improvement and relation generally to mankind. Under a corresponding point of view chemistry—with its *artefact* natural productions—and mineralogy can be considered as forming together a science coordinate with botany and the others.

INDIVIDUALITY.—The great realm of inherent or self-efficient forms, naturally divides into two chief heads, that of inorganic and that of organic efformations, or of dead and of vital individualities. Individuality is the result of circumscript conformation, proceeding from an internal law. A pebble, it is true, is a circumscript conformation, but its law is a series of external circumstances. Its inherent qualities were concerned only as passively *resisting* powers, not as formative or *proceeding* ones. Under a point of view where its actual existing form, its geometrical centre, its centre of gravity, its rotundity—things essentially or *intrinsically connected* among themselves—it may stand as an individual *body*. But never as an individual; for such peculiarities proceed not from within.

LIFELESS INDIVIDUALITY.—A crystal, on the contrary, can fully claim individuality. Its form is dependent on intangible essential qualities. The same chemical substance can produce different forms of crystals, but only certain ones, all obedient to the same fundamental laws. There is even an individuality in each single crystal. From the first moment the microscopical crystal is perceived, it is fully endowed with that especial configuration it still retains, when waxed as bulky as external circumstances will permit.

A perfect crystal, if broken, or one that met a mechanical obstacle to an all-sided development, if placed into its mother-brine, from which it can grow on, either will first restitute the typical form before increasing by adding new layers.

LIVING INDIVIDUALITY.—In the life-endowed kingdoms, the manifestations and existence of individuality are too well known to need elucidation. The leaves of plants are no individuals, for they are, like members, vitally dependent on each other. The plant is the individual.

If by freaks of nature, or by their typical law, apparent individuals are vitally coalesced, they form only one individual *in that respect.* The Siamese twins, if their bodily life is mutually conditioned, are one bodily individual. If mentally independent, they are two moral individuals in joint bodily individuality. The limb on the tree is no individual. Sap the tree and the limb dies—they are in vital connection, the limb dependent on the tree. If taken down from the tree and thriving as a scion on its own merits, it is become an individual.

JOINT INDIV.—Gregarious animals, like certain corals, are as many individuals as there are independent lives or wills. There are even joint individuals of this kind, where sensation seems to be held in common—here we have compound or joint stock individuals.

Natural history, then, is the science of the types of individualities in nature, and of their relations.

As far as physical and organic constitution is concerned, man, too, has his natural history. But his is also a life of moral and intellectual consciousness, which in him is *progressive*, and not bound up into a certain round as in animals.

SPECIFIC CHARACTER OF MAN'S PROGRESSIVE INTELLECT.—Man has no natural state, as vegetables and animals have. He cannot exist without altering his food by fire. The earth cannot yield him subsistence except through the exercise of his peculiar intellectual endowments. However much or little required, they are unbounded, and unbounded are their results.

Thus we see that what makes man different from all the rest of types, organic and inorganic, is the very condition of his existence. It must therefore be accounted as in every respect essential to his type, while it lies altogether out of the range of natural history.

Hence physical man and moral or conscious man, as they form one single individuality in their mission as MAN, claim a science of its own—*anthropology*.

SCALE OF EFFORMATIONS.—In its material considerations, it is founded on natural history, but superseding it by the introduction of a higher—progressively spiritual and moral—element, law and person; in a similar manner as zoology supersedes botany by the introduction of agencies of conscious life, as botany supersedes mineralogy by agencies and laws of life and generation, and as mineralogy with chemistry supersedes mechanical nature by intrinsic motives of efformation.

Scource of Science.—If we will study man, we must study him in his specific peculiarity, *progressive intellectuality*. But it is not man alone that we thus study, for being men ourselves, we conceive of all other things in the mode of human beings. In this respect, anthropology is at once the fountain-head, the rounding and mother-brine of all science whatever.

Modes of Conception or Conscicusness.—We conceive of all things by means of our *impressibility* and *intellectuality*, and we act on it by our *will;* all of which are various modes of *consciousness*.

1. Sensuousness.—We claim *sensuous* consciousness—*e. g.*, sensation, olfaction, taste, sound-sensation, light-sensation. Each has its subdivisions of innumerable varieties and transitions. They combine cooperatively under the superintendence of judgment, and it is thus they constitute the senses, or sensuousity.

2. Intelligence.—Such is sensuous consciousness. We have also an *intellectual* or reasoning consciousness, consisting in the exercise and consciousness of thought. We have already said that by its instrumentality—as judgment—the senses are framed out of the sensations.

3. Sentiment.—We have *sentiment* or sentimentous consciousness, such as desire, satisfaction, grief, mortification, love, elation, depression, etc.

4. Will.—With the fourth, namely executive consciousness or *will*, it constitutes character.

The various modes or forms of conception, that are fundamentally active in our self, are called "categories."

Character of Conception.—Conceiving or understanding is like unto a process of measurement. It is judging of the concrete material by means of more fundamental conceptions. To know what those fundamental forms in which we feel and think, etc. are, would be the key for all knowledge. As we find ourselves placed in creation, we derive every insight, as even self-consciousness, by means of sensuous consciousness and intellect operating on it. This we call sensuous experience. There is another kind of passive experiences, namely, sentiments—the various results of cogitation within sentiment.

Passive or Receptive Consciousness.—Both the sensations and sentiments are passive or receptive, and their common name is *feeling*.

Active Consciousness.—Thought, logic or conclusiveness, attention, desire, will—or active consciousness— all are matters of spiritual experience, and so is passive consciousness or feeling. Our mind is perceptive and active.

Process of Waxing Conscious.—Its perceptions stir it into its activities, such as thought and will. As to sensuous perceptions, the physical world is furnishing the *occasion*. The *quality* is constituted within our consciousness. For light-sensation, the physical agent of that name *is not required:* pressure or lesion, chemic or galvanic excitement of the nerve, also furnish an occasion for the optic nerve to excite light, for the acoustic to excite sound, for others taste and touch. The nerve may be extirpated, and the lesion of the contiguous brain still affords the consciousness of light. When a name was given to the thing, its normal agent being unknown, of course, if anything at all, it implied the *sensation and its occasion*, most of its relations, of course, referring to its *normal* physical stimulant, the name was by transfer applied to the *ray*, etc. For the sake of argument and clearness, however, the practice to confuse the *accidental occasion* with the independent *quality* of the effect within our consciousness, must be discarded.

The Occasion different from the Phenomenon.—Two different names must be assumed, as *e. g.*, olfaction and odor. We know the former by sensation. What the latter, namely, the efficient occasion, is, science has not yet elicited. What is proved of the hammer is by no means conclusive of the nail or the drift of either, and it is this lack of discriminative and consistent appellation that leads to the most important fallacies, the slippery retreat of vagrant materialism.

The Outward World —Feelings, sensations, are effects. For sentiment we aver the causes within our own consciousness. By our consciousness we recognise sensuous sensation not only to be an effect, but rational consciousness, unable to assign it a cause within the realms of the mind, by a law of its own *concludes* on a world of *causes* independent of our own mind, and thus we form the idea of the external or objective world, in contradistinction to the subjective, or that of our conscious being, constituted and activated laws of conception, thought, morals, sensuousness, will—laws different from those we observe in the physical or outward world.

SENSUOUSNESS QUALIFIED WITHIN OUR SELF.—That the quality of sensuous consciousness is inherent to our own soul, and not to some accidental, or appointed, external occasion for its manifestations is also shown by the facts: that we are directly conscious of it; that in a dreaming state a consciousness of the same quality, and often more indelibly impressive, stands before the mind; that we can reproduce it in recollection; moreover, by the figurative application of sensuous ideas, as bitter, caustic, mild, light, etc., to sentiments and ideas, which parallels would be impossible and unintelligible, if they were not similarly constituted. Sometimes they can be reproduced—in the wake-state—by vivid recollection—an exertion of *mind*.

ALL CONCEPTION CONSTITUTED WITHIN THE MIND.—Thus all and everything is felt and conceived by dint of, and within our inherent capacities of consciousness. For our sensations as well as our conclusions are qualified within our spiritual essence.

Conclusion from sensations leads us to the knowledge of a world independent of our consciousness—an "outward" world. Sensations supply the subject for ideas and both excite our sentiment, understanding and will, which again reflect their energies back on the others.

THE CHARACTER OF SCIENCE IS COLLECTIVE UNDERSTANDING.—All understanding forms part of a science. The only difference is: that science *strives* to be complete or systematical, while understanding may be desultory. Science is the survey and judgment of phenomena under *collective points of view*. Its material is derived from *casualities*, that occur and call the intelligent mind into action. From the recognition and analysis of the concrete or casual, science draws its substance.

SCIENCE IS NATURALLY INCOMPLETE, BUT PROGRESSIVE.—In this respect, science is always incomplete, until perhaps one day all is known, felt, conceived, and only one science, one all comprehensive idea exists. Meanwhile sciences remain more or less isolated and certainly all incomplete. Even so with mathematics: they drew their motive for proof, analysis, &c., from concrete cases where the question arose, and there are many questions pending and new ones arise. The reason why we cannot foretell the extent of a science, nor build it up from a primary starting-point, is: that we cannot surmise the casualities nor survey the *laws of intellect;* and science is a result of intellect.

TWOFOLD SOURCES OF EXPERIENCE.—Science derives its casualities or concretes from two different sources: from sensuous experience and from intellectual experience. That there is *blue*, is no result of intellect, but of sensuous experience. What *thoughts*, *will*, *attention* are, are matters of spiritual experience. Of the former, the occasions are in the outward world, of the latter in the inward or conscious world, while the conceptions of both are in the conscious world.

SCIENCE, A FUNCTION OF THE MIND.—Thus we see science is operated within the human mind. It is but natural that eminent men of science could not succeed to *classify*—i. e. *qualify*—sciences, while they sought its character outwardly. To classify from the nature of its objects, while we only know part of their phenomena, is an impossibility. Science exists within the mind, and is conditioned by the forms or capacities thereof, whatever be the casualities that supply its material.

A SCALE OF CATEGORIES FURNISHES A SCALE OF SCIENCES.—Casualities lead to ideas, ideas to sentiments, sentiments to deeds, and after this scheme there may be formed four corresponding heads of sciences, each having its own peculiar casualities, by drawing on the foregoing and proceeding into the following. The first casualities are those of sensuous experience, which hence indirectly supply all the rest.

1. Sciences of sensuous casualities: Natural Sciences and History.

2. Sciences of reflective casualities: Categories, Logic, Mathematics.

3. Sciences of sentimentous casualities: Morals, Metaphysics, Literary sciences.

4. Sciences of executive casualities: Arts, agriculture, callings, professions.

The first are based on *consciousness*, the second on *reason*, the third on *sentiment*, the fourth on *will*. All together—the application of sensuousness to reason, of reason to sentiment or conviction, and of conviction to deed—constitute *philosophy*, which is *judgment*, and it, as a category, is the manifestation of the *progressive spirit*.

QUICKENING, OR ASSIMILATION INTO LIFE.—The deeds are the living convictions, convictions are the living thoughts, or thoughts

translated into life, thoughts are the sensations quickened into vital process.

INDIVIDUALITY AND PERSONALITIES OF THE MIND.—Thus we see where manifest life is inmost and intensest: in executive consciousness or the *energy of will.* Will, indeed, is only one at a time, is an individual. Sentiments are various, often warring with each other. There is an unisonous *essence* that makes one individual human total of all—one person. The same with thought: thoughts may be at variance, there is a *power* decides and makes one human whole of them. Our intellect-person and our sentiment-person are but too often at variance with each other, as any one can testify within himself. Both challenge the UNDERSTANDING SPIRIT by their dissenting desires. Sensuousness also challenges it by its desires. Thus each of these three external spheres form a human whole, or person — each constituted such by the fundamental one individual spirit. There may be many desires, but there is only one will, like the spirit whose messenger it is. Will is whole by itself. As *deed* it issues in one-man-power, charged with the dignity and responsibility of that power.

PLAN OF EXPOSITION.—The first fund of casualities, that tend to excite the conscious mind to activity, being supplied by sensuous experience, we think it most consistent and practical to enter on the exposition of the sensuous capacities, their organs and connections, leading us in the more profound categories—of intellect, sentiment and will—and supplying the material to draw conclusions on the character of our inmost vital self, accessible only through the manifestations of its energies, so far as we can establish them by the analysis of experience. We can thus effectually circumscribe the region whence man draws the occasions for bringing into relief his own inherent energies, and thus obtain a clue to trace and qualify them inductively, commencing where he commences, tending whither he tendeth.

ARTICLE III.

Vestiges of the Aborigines:

As Observed in their existing Monuments and Relics.

BY EDWARD P. HALL.

Ours, in the planetary system, is but a small globe; yet its inhabitants are not fully acquainted with its surface, and not half acquainted with its history. There is a Welsh tradition of a visit to the Western continent; indeed, there are several accounts, which although wearing something of the appearance of probability, are not sufficiently clear to be related in history. I would not, therefore, think of venturing upon the obscure question of original population—that we know nothing about.

The recent discoveries in Central America of a people of long bygone civilization—so long that their exists not even a tradition of them—must, however, awaken the attention of the curious thinker. They must induce him to look with renewed interest upon the numerous monumental remains of aboriginal races, scatered far and wide over almost every portion of our own Mississippi Valley.

In the fall of 1854, while on a tour of recreation through the lower and middle sections of Illinois, I enjoyed a fine opportunity for examining minutely many of these Indian mounds and fortifications, as they there abound in vast numbers, sometimes lying in a connected range, for miles along an elevated prairie-ground. Impelled by natural curiosity, as well as the kindred desire for historical investigation, I spent many weeks among these repositories of the dead, exhuming with the spade, bones, arrow-heads, pipes, house-hold articles, and even a few rough fragments of sculpture.

I found but few spots, however, which seemed to bear so exact and complete a resemblance to remains of ancient fortifications, as may be found in other portions of our country. But among these there is one which is particularly worthy of notice, and cannot be uninteresting to the Antiquary. The one to which I allude is situated in Pike county, about twelve miles to the south-east of Pittsfield. It is in sight of the Illinois river, and over-looking seven small and beautiful lakes on the west. I do not know that this work has been fully described heretofore; as I have not seen a description of it, and as, probably, it may not be uninteresting to the reader, I will attempt a short account of its general outline.

The land immediately surrounding it is broken and uneven; rising rather abruptly from the level of a prairie full thirty miles in width. Like all the neighboring country, it is thickly covered with native

grass, without trees or bushes. In the midst of what might appear an extensive amphitheatre, formed by circling hills, and about a half-mile each way from the main level country, these remains are visible. They consist principally of a large mound of an oblong shape, elevated about twenty feet high from its base, flat on the top, and covering two or three acres of ground, partly surrounded by a ditch. Its length extends from east to west. On its top, are six other mounds, situated in a straight line along the brow. Of these, the largest is on the west end, measuring twenty-five feet above the top of the main mound. This upper mound is likewise flat on the top, and covers about one-fourth of an acre. The side of it next the ditch continues down in the regular slope of the main mound, a distance of 45 or 50 feet. From its top there is an excellent prospect of the whole remains as well as the surrounding slopes. On the east end there is a similar mound, though not so extensive, ond not more than twelve or fifteen feet higher than those on the south side. The former being eight or ten feet high, and but a few yards apart, while the latter are not more than five or six feet high, and are twenty-five or thirty-yards apart. Besides these, there are apparently several other small ones, situated along the brow of the principal mound.

The side of the main mound, as well as of the two largest supermounds, are steep almost to abruptness. The work does not present a full and regular circumference, but is indented, and projects, somewhat similar to the salient angles of modern fortifications. The remains of three avenues into the area of the work, are easily to be seen. Of these, two are upon the north side, one of which appears to have been an open way; the other is the largest of all, and has evidently been a subterranean or covered passage, and enters the work about one-third the distance from the brow to the centre. It passes up between the two mounds, on that side. The other avenue is on the south side, and appears, likewise, to have been a covered avenue.

At each end, distant twenty or twenty-five feet from the base of the main mound, are two small mounds, or banks of clay eight or ten feet high, standing so as to form corner-points to the entire work. The space between these and the base of the large mound at each end, is that which is occupied by the principal remains of the ditches, and is generally covered with water. These ditches have evidently been formed by taking away the dirt to construct the large mounds on the ends of the main mound; and the corner mounds appear to be spots untouched, rather than elevated by much labor. There are traces all around the base of the work of dirt being taken away, probably to build the smaller mounds or turrets.

Since the first settlement of the country by the whites, this work, it

is said, has not been materially changed, as no effort to cultivate the place was ever made. So distinct are its original features, I thought I could see traces of large roads, leading out of the hills in various directions, from the common centre. Yet as there are few trees of any size growing here, nothing is left to indicate how long they have been out of use. Skulls and other human bones have frequently been discovered two or three hundred yards from the work, disinterred by the washing and caving of a ravine. They may also be found nearly every where in the vicinity, by digging a few feet beneath the surface.

This work has, in all probability, been constructed at great expense of human labor. Doubtless, the site was originally an elevated knob, the top of which was levelled, in order to form the area on the surface of the principal mound. Great quantities of dirt being taken from the sides all around, and carried on top to assist in forming the smaller mound, has produced the steep ascent all around, and given to the whole a formidable aspect.

The purpose for which this work was constructed, admits of some speculation. By a slight stretch of imagination, we may consider it a temple of the Sun, and that it was erected by the ancient race of Mexicans, whose jurisdiction is said to have extended almost as far north as this spot. Various other speculations might be indulged in; but I think the most probable is, that here stood a military fortification, constructed by the Mexicans as an outpost in this distant province. As a fortification, it has probably been of the grandest order, and, if well garrisoned, must have proved impregnable, not only to Indian, but also to European warfare. Very probably it was occupied at the time the Mexican government was overturned by the Spaniards under Cortes; after which, it may have been deserted and neglected. The large mounds on each end of the work are very steep, and probably were places of last resort, in case the main work should be carried; or were intended to serve as eminences for prospect, as well as the residences of superior officers. The smaller ones were, doubtless, built as turrets of defence, especially those situated on each side of the great avenue. The ditches at the end may have been much deeper and may have extended further around them than at present. The indentations and projections are additional evidences that it has been a fortification, and that it was built by a people well acquainted with defensive warfare. Another evidence of its military nature is its situation on an elevated spot, having a declination in every direction for several hundred yards. Hence, the approach being ascending, capture must have been difficult. Indeed, if manned and armed with a degree of art at all corresponding with that displayed in its construc-

tion, it could scarcely have been taken, except by stratagem, treachery, or siege.

It does not appear quite probable that this was the former site of a temple. It is not likely that such an edifice would have been in the form of a mound, and furnished with such a variety of means for defence. If there was anything like a wall of either brick or stone, no traces of it can now be discovered. Indeed, stone is an article which is rarely to be found in this vicinity.

A gentlemen of my acquaintance has made an extraordinary collection of curiosities, dug from a mound something similar to the one just described, and situated in Northern Arkansas. These consist, mainly, of a vast number of pipes for smoking, of strange shapes, and carved with curious images. The bowl generally represents some animal, sometimes a human face. The animals are carved in a very remarkable manner; the physiognomy of the species is generally happily seized, as is the case in some Egyptian and Japanese sculptures. The countenance of an animal, it is well known, is much more easily copied than that of a man. These Indian artists succeeded admirably in reproducing the character of quadrupeds, and birds, in an action conformable to their habits; a falcon is tearing his prey; an otter seizes a fish with great reality of attitude and expression; the falcon appears really to tear, and the otter really to bite. The heron, "with its long beak looking like a handle to his long neck," has been as naturally and faithfully portrayed by the unknown sculptor, as by the great poet La Fontaine. The joints of his long legs, the scales and gills of the fish he has seized, are finished with extreme nicety; and it is the same with the reptiles, with the form of a head of a rattlesnake, and the roughness on the back of a toad. It is actually an American menagerie containing the squirrel, the tortoise, the eagle, &c., &c. This is not a fantastic sculpture, like that of the Mexicans, nor rude, like the shapeless designs of the Red Skins; it is a different and superior art, following nature closely, with a skill capable of representing without disfiguring her. There are also men's heads of remarkable workmanship; one of them having a perfect individual character, represents a chief, whose face is tatoed; another is a well executed death's head. A man on all fours, shedding tears, is probably an enemy, thus transfigured in order that his conqueror might have the pleasure of smoking over the image of his person, in sign of triumph.

This great number of pipes, proves that the custom of smoking may be traced in this country like the monuments in which they are contained, to at least a thousand years back. The surprise that might be created by the abundance of these pipes disappears when we remember that the act of smoking was a religious ceremony among the na-

tions of North America, and that it still forms with many of the remainiug tribes, the most essential portion of the ceremonial, in assemblies where treaties are either discussed or ratified. Many proofs have been collected by various men of historical research, to show the religious tendency of this act, and that to burn it was a homage paid to the Divinity. However this may appear, tobacco was an incense. There are still races in the south-western portion of the continent who ascend a hillock, at the rising of the sun, to puff a mouthful of smoke towards the zenith, and in the direction of the four cardinal points. Other tribes say they have received tobacco, as they did maize, by a messenger from the Great Spirit, to whom they offer the smoke of their pipes; and this ceremony preceeds all others.

A singular tradition exists among the savages who dwell between the Upper Mississippi and the Upper Missouri. There is found in the hills of the prairies a red stone, which serves for the making of pipes. All the neighboring tribes repair thither in time of war, as well as in time of peace; for, say they, the Great Spirit watches over that spot, and the battle-club or the scalping knife never strikes an enemy there. Some of the Sioux (of whom Cooper has written so voluminously and well) relate, that the Great Spirit one day sent forth his messengers to convoke all the tribes in the red-stone quarry; he took a piece of this stone, made a pipe of it, smoked it over the assembled multitude of Indians, and told them that though they were at war with each other, they must always be at peace on that spot; that it belonged in common to them all, and that all were to fabricate their pipes with that stone. Having spoken thus, an enormous column of smoke issued from his pipe, rolled over their heads, and he disappeared in the cloud. The rocks were envelloped in a torrent of fire, so that their surface was melted. Two women seized by the flames, fell under two sacred rocks, and no one could carry away any of the red-stone without their consent.

There are several things to remark in this legend. It resembles principally a kind of "Truce of God," such as was established in Europe during the Middle Ages, to suppress or at least mitigate the endless and bloody wars of the feudal barons, and the vague remembrance of some volcanic eruption. But I would only draw the reader's attention particularly to the religious character attributed to the act of smoking, by the sanction of the Divinity himself. It is not, then, at all wonderful that pipes are met with in such profusion in some of the Southern States, and in the hillocks and rising grounds of Ohio, the design of which appears to have been religious as well as funeral. In fact a great number of altars are formed among the hillocks, (which I

suppose are similar to what the antiquaries of the Old World call *tumuli*); and in some few, human bones.

In a collection I once saw in one of the Eastern cities, was a skull brought from a large hillock, which is formed upon an elevated situation, a few miles from Chillicothe, and seems to dominate over the surrounding country. This was probably the tomb of a celebrated leader of these same unknown people, who constructed the fortress before described. This skull represents, in the opinion of a nighly scientific judge of such matters, the most perfect type of the Indian race. Other objects of equal, if not greater interest, may be seen in the same collection.

In the first place, there are warlike weapons, javelin and lance points made of flint stones, as in many other instances. Such things have excited the wonder and curiosity of almost every plough-boy in the country. But what is most singular about these, is, that some of the lance points are of clouded quartz and rock-crystal. Both appear to have been formed from a model furnished by nature in the teeth of the shark. The hillocks furnish a great number of these teeth, as well as of the bear and the alligator; they appear to have been employed to make a kind of necklace such as is worn by certain tribes to the present day. A few tools seem to indicate a certain degree of skill in the people who used them. The stone spears have been polished with sand; a species of wheel which presents a groove on the exterior, appears to have received into this groove a wire, perhaps metallic, by means of which a wimble might be turned; metallic wires were also employed in mending stone objects, that were broken; plates, pierced with holes, the interior of which continued to grow wider from one side to the other, perhaps served as wine-drawers. Some earthenware vessels of various and frequently graceful forms, a few presenting on their surface festoons and ornaments, are, as well as the pipes, very superior to anything of this kind fabricated by the indigenous races who have since lived in the same regions. Numbers of shells, likewise, have been found collected in heaps, as if they had served for money. It is well known that such was the practice in India, and that the same custom at one time existed among certain wild races of this continent.

Now, the reader will please to observe, that in all these there is neither gold or iron. The arms of Homer's heroes were of bronze, and hitherto, very few objects in iron have been discovered in the tombs of Egypt. The order of the fabulous ages of humanity, is the historical order of the discovery of metals, according to which, the ages have been designated. Gold is the first, this metal is met with on the surface of the earth, or in the beds of rivers. Silver is more deeply hid-

den, and the procuring of it is more difficult; thus the Egyptian hieroglyphic, which designates silver, means *white gold.* The age of bronze, or of copper, comes after the age of silver, and then the age of iron. They who reared these hillocks had not arrived at that age; they, in particular, employed copper, and, in small quantities, silver, which accompanies copper in many strata. I recollect that I once fancied that I could recognise in some masses of compact freestone, a sort of anvil, upon which copper was beaten or struck. This nameless people, in common with several nations of antiquity, approached very near to the discovery of printing, if, as it is believed, they traced designs in relief, which, coated with oxyde of pulverized iron, served to impress various ornaments on the skin; but I cannot believe that certain hollow tubes have been employed, as it is pretended, in astronomical observations. These were more probably and more simply, nothing but tubes of pipes. What is very curious as regards these antiquities in general, each hillock contains a particular class of objects, which are there collected to the exclusion of others; here, pipes—there, quartz arrow points—elsewhere, a heap of mica plates, which probably have served as ornaments or ensigns. Some believe that each class of objects was consecrated, as well as the hillocks and the altar, to a special divinity, and that the bones sometimes found within them, belonged to a chief or a priest particularly attached to the worship of that divinity, and who was buried, by right of distinction, near the altar.

The altars themselves are sometimes found burried. Many of the objects anciently placed upon these altars bear marks of fire. How can this be explained? Were these objects offerings? Were the altars burried to conceal them from the conquerors, when this unknown people fled before the more barbarous races, which would have annihilated them? It is very certain that these people, whoever they were, had modes of access and intimate relation with various and very remote parts of this continent. They fabricated ornaments in bone or in shells, and set them in copper or silver; they had knives made of *obsidianus*, which is a black stone, or kind of volcanic glass, taking a fine polish, is very hard, and was used by the ancient inhabitants of Mexico and Peru; the eyes of animals are frequently represented by pearls. Now, the copper was not likely to come from any where else but the shores of lake Superior, the obsidian from Mexico, and the pearls from the gulf to which that country gives its name.

This collection was the property of a gentleman by the name of Davies, and is perfectly unique in its kind, as few of our best museums in the United States, perhaps, possess anything belonging to this.

I was going to say, I wish we had it in St. Louis; but I correct myself. I love science, but I do not think it right to plunder any particular region of the monuments that particularly belong to it.

The fact of the carved animals on pipes, brings to my memory a very extraordinary description of this kind, given by a historian, of one of the statues destroyed by the Crusaders, when they took Constantinople in 1203. It was an animal in bronze, placed on a stone basis, and might have been taken for an ox, but its tail was too small. Like the oxen of Egypt, it had not long dewlaps and the hoofs were not cloven. It was crushing within it's jaws another animal, whose body was bristling with scales, so pointed, that although bronze, they would wound those who ventured to touch them. The large animal was supposed to be a basilisk, and the creature it had seized, an aspick. But it was also thought by some, that the one was an ox from the banks of the Nile, and the other a crocodile. The historian tells us he will not undertake to decide between these opinions, but will be satisfied with declaring that they were engaged in a most astonishing contest, and inflicted frightful wounds upon each other; for, sometimes the stronger sometimes the weaker, they were, at the same times, conqueror and conquered. The animal which many supposed to be a basilisk was all swollen from head to foot, and the poison circulating through the whole body, and flowing in all its members, gave it a color greener than that of frogs—the color of death. It was upon its knees, with languishing eyes, and appeared to have lost all strength and vigor. It might even have been believed that it had been long dead, had not its hind legs at least still stood firmly under it. The other animal which it held in its jaws, still waved its tail a little, and opened its long mouth under the pressure of the teeth which held and stifled it. It appeared to use its utmost strength to escape, but could not succeed; for its body was fast between the jaws, and transpierced by the teeth of its enemy from the shoulder and the fore feet to the tail. Thus they died, the one by the other; the combat mutual, the vengeance reciprocal, the victory equal, and the death common.

If our historian was not too fanciful in this description, and if all this could probably be expressed in a bronze group of statuary, I think it amounted to a national record, in hereoglyphic language of the manner in which the great people who formerly inhabited the western continent, were annihilated—by mutual collision and destruction. In all likelihood it was conveyed to Europe by some accidental survivor, and preserved by the literati and historians of Constantinople as an appropriate *memento mori*, the only vestige left to history from a yawning chasm of centuries, where the deeds of mighty nations rest in oblivion!

ARTICLE IV.

Newspapers; and what to do with them.

Newspapers are not only vastly voluminous, but have in them an endless variety. They are a *word* world in epitome. Promiscuous files of newspapers must be reserved for public libraries. It is neither practicable, nor desirable, to accumulate them in private hands. They can be consulted for such a variety of purposes, that it seems as if the only suitable place, for anything like *general* collections, is some exposed situation, where, for all their uses, and to all who desire them, they will be accessible. General collections of newspapers, as extensive and as complete as can be made, are desiderata, the importance of which, itself, might well employ an entire article.

It would lend attraction to these files, if pains were taken to give each distinct series as much uniformity of labelling as practicable —if they were arranged on shelves that were not so low, that their titles could not be read without great inconvenience from stooping over; nor on the other hand, as we have sometimes seen, so high, that there would be danger in the attempt to hand them down—if at every very brief interval, *braces* were introduced on the shelving, so that when one volume was removed, a dozen others would not lose their balance, and fall to one side. It helps greatly, both to damage and to confuse the files, when a score of volumes, perhaps even 30, have to be straitened up, before one that has been consulted, can be restored to its place: if indeed its own proper place is not perchance wholly disregarded. An unsightly mass! does a great pile of newspaper volumes present, laid flat on the floor, and one above another, till by their height the best exertions to be rid of their trouble, and to get them fairly *out of the way*, are fully vindicated. They tempt but little, when dirty looking and disarranged; and still less, when added to this adhering dirt, and unsubdued confusion, they are thick coated with dust, which you cannot fail to contract, perhaps over your whole person, by handling them; and which you are the more certain to contract, if the weight of a dozen leaning volumes has to be sustained, before the one you wish can be removed, or a well nigh herculean strength is required to be applied, before the obstacles arising from its compressed situation can be overcome. But take these files, and *re-*

pair what is torn, or in any manner defaced, about the binding; give to the whole an air of unity and neatness, not to say of cleanliness; arrange them in alcoves, it may be, with the sections apportioned off so small, and the volumes disposed so loosely, as that each shall have full room, and any one may be removed with entire ease and convenience. Indicate now, by some permanent arrangement, that thus many volumes of any given file belong to the anti-Revolutionary period; that within these limits, in this file, it is to be noted, is the period of Washington's administration; within those limits the period of Jefferson's administration; and so on. Continue this distribution of the volumes under subordinate titles, even to those instances in which the papers composing the file, were devoted to the formation of certain definite opinions, or the building up of given specific organizations. Of the files of temperance papers, these volumes belong to the period when temperance organizations were confined to the pale of religious societies, and when the high sanctions of the church were necessary to give importance to their pretensions—these to the period when the bars were broken down, and the temperance organizations of the church became the organizations of the civil community at large—these to the Washingonian society period—and these, the no license and Maine law prohibition period. To the files of agricultural papers, apply the classifications of grazing, of hemp culture, of grape and fruit culture, of agricultural societies, of stock importation, &c. We have thus something attached to our files suited infinitely better than the old *name* of the newspaper (which is but a solecism) to suggest to us some present use which the volumes may subserve. To these classifications of the files, under titles, indicative of their use, add a well digested index to the matters contained in them, and how changed the appearance! We at once discover that we have before us what no money could replace, if these should be destroyed. There might appear to be more danger than would be real, in hazarding the assertion, that there is not a work, however recent or carefully prepared, on all the topics embraced in our newspaper columns, that thus arranged and indexed, they would not *instantly supercede*.

And yet this use of newspapers, in public collections of them, is but the ultimate use; a dernier resort. The highest and best, the most facile and universal use which is to be made of newspapers, a use which all may make, and must, if they would appreciate the

advantages of the newspaper era above any former, is before all this. The chiefest benefit to be derived from the newspaper, is to be had, taken while it is what is implied in its name. Its news are most timely, the moment of its issue. Its literature most attractive, during its greatest currency. Its beauties are most beautiful, in the noontide of their season. It is just as unnatural to separate the rose from May, or the frost from winter, as the newspaper from its befitting time. Like as the oak, with brawny arms and worried shaft, when its compeers have all long since been felled by the woodman's axe; or as the aged patriarch, whose entire generation has one by one lain down to sleep with their fathers; so is the newspaper, whose voice sounds but over the graves of those whom it once addressed, whose actings are now but a hollow pantomime, whose patriotism a historical fact, whose hopes and fears, things that *once were*. It has no cotemporary. The voices of nature, the mountains, the battle-fields, the rivers, and the plains, are all that remain to give meaning to their words, or an insight into their associations. Villages have since grown up into cities, and cities have become depopulated wastes. A brick from old Jamestown is examined with an inquisitive eye; and the era of its establishment in an age less enlightened, would have already become fabulous.

We are not unapprised that there are those who would discuss the expediency of the newspaper. It is needless. The question is settled. The wide diffusion of knowledge determines a form of literature suited to that diffusion. The free prerogative of authorship, in any form in which thought may be expressed, demands for all a mode for the free utterance of thought. The light cannot be collected at one focal point, which God has designed for universal diffusion. It is the privilege of all who have eyes to behold its tints, and who have taste and genius to represent its beauties and reflect its colors. There may be evils in the ends to which the newspaper is perverted, or defects in the spirit in which it is conducted: but whenever our folio literature shall be done away, it will be found to have been done away, not by arguments against *it*, but by arrangements, combining in them elements of good, for the mind and the heart, for society and its institutions, *greater* than are combined in the periodical press. All experiments to this end have heretofore failed: and till society shall be more perfect in its organization, and more uniformly elevated to a superior level, we expect them to fail, and *then* we expect them to fail, perhaps for-

ever. For free institutions, an educated people, and an age of progress, we can conceive of nothing superior to the newspaper.

Individual intelligence is not only almost inseparable from a use of newspapers, but is more or less dependent upon the *sort* of use that is made of them. They are pictures that refresh the mental eye, and gladden the heart: but they are *passing* scenes, from which, if we would derive more than temporary benefit, it is indispensible that we should make our *notes*. Every one reads, who reads at all as he should, with a design in view: and this design, in a large majority of instances, is apt to be one peculiar to himself. There is a universality of character in newspapers, owing to their being ambrotypes to the mind, of the great world that is without that causes them to yield to every one who will seek a fruit which is according to his taste.

The first thing, then, to be done, is to determine the purpose for which you consult the newspaper. We might say, study; for it is a great folly to do so much reading, and not cause it in some way to inure to the benefit of our intelligence; and there can be but little intelligence, if our reading is not confirmed by reflection. And herein it is that business has so manifestly the advantage. For interest that leads to a continual revolving in the mind of the concerns of life, seizes upon its important colum, and appropriates its information in a thoroughly digested and most methodical use. It is not the design of newspapers, in furnishing matter *for all*, to promote mental dissipation, and thus weaken that mind which it should rather feed, and for its own good strenghten. There are expectations we indulge, when we take up a newspaper. Let us pursue them definitely. And if there be increasing topics of interest that shall claim our attention, let it but serve to widen the field of our inquiries, not to deprive the mind of its greatest excellence —a just equilibrium.

A vast *variety* of topics are presented in the newspaper for our consideration. It is their very freshness, and the unexpectedness of the meeting with them, that gives to the sheet its charm. In this repository may be stored away, in kindred columns, our most fugitive thoughts, or our most profound reflections. *For* whatever, in the haste or in the brevity, or in the crudeness, as yet, or even in the importance of our mental labors, we can think of no suitable place anywhere else, there is a place in the newspaper. And in these vast collections, of consequence, the miner may hap-

pen upon some precious "lead." In this imperfect state of our nature, everything is struggling upward. All are seeking for higher utterances. Happy is he, therefore, who trusts more to his appreciative instincts, than to the labels and sign-boards, which, not without their measure of ignorance and of partiality, have been placed along the ways of knowledge. The newspaper is the telegraphic office for every new announcement, recent discovery, important thought, or promising intimation. As such it is used. And amid such acquisitions, therefore, as shall be continually flowing in, the mind needs the aid of those appliances which accompany in substance, if not in form, all well regulated inquiry. If the laws of association do not enable us, in some remarkable manner, to store away what we acquire in our reading, we should submit ourselves to the use of some such help as the index rerum, building up our columns, and beautifying our book with valued thoughts, as the rich their abodes with costly furniture.

The mind that reflects is a part of that Universe which it contemplates. The *word* picture contains a picture also of itself, of all its brotherhood, and of all the arts and contrivances by which it is produced. What has been extracted for the newspaper, therefore, from magazines and all other publications, that are, in form, of a smaller size, and which are consequently more convenient for consultation than the unwieldy folio, *may be separated off to itself*, and referred to its original sources, and thus newspaperdom be rid of *much* of its cumbrous bulk.

With due precaution we may discharge ourselves of much of the inconvenience that would attend the examining of heavy files. Still, however, there must remain in them many original articles, for want of reference to which the author is imperatively hindered in his work, the artist in his toils, the antiquarian in his research, the historian in a pending delineation of facts. These articles appeared at first and alone in the newspaper. The very fact of their being of a specific character, or of local interest, had determined them to this disposition. Ourselves driven about on the stormy sea of life, subject to its numberless vicissitudes and mischances, this product of the mind has been bottled up, and cast forth upon the wave, or even the little wavelet, that perchance some kind wind or favoring current may waft it to a propitious haven. Who knows what may become of the treasure, or when it may be brought to light from those mysterious retreats to which an inexplicable Pro-

vidence sometimes consigns things. These gleams of the sunlight that is in the inner man, these radiant flashes of the awakened intellect, these impromptu effusions of the soul, these exactions from nature of her own living and free impulses, are there any glories of the newspaper press that are greater or more exalted than these? Let us then reach out a discriminating, yet appreciating hand for every real perennial blossom of the heart, every gem that is borne up from the depths of the great ocean of thought. Let each and every one, according to the sympathies that "are a law unto" himself, arrange his own collected joys, and beautify and adorn his own well-ordered palace of Thought.

Nor would we seem indifferent as to the *style* in which this index should be gotten up. Every lover of books, loves, if he may indulge it, taste in his books. However immethodical the mind, it comes to love neatness and order (when prepared to its hand,) as being conducive to its well being, just as it loves cleanliness as conducive to health of body, or neatness to gentility of person. We would have a neat volume; for whatever is worth the doing, is surely worth the cost of its being done. How many hours of pleasant toil, that might be honored with lasting reminiscence, are ruthlessly thrown away, just for the want of a little expenditure. Not so the business man, the binding of whose volumes is nowhere excelled. His are to serve a purpose and then be thrown aside. To ours, age but adds increasing value with increasing years.

To derive the full benefit of these undertakings, the name and the date of the newspaper should precede the extract inserted from it. This at once decides its locality, and furnishes us, in perpetuum, with a clue to its literary history.

A two-fold classification of the labor thus performed, under an index to the newspapers extracted from, with their dates indicated, and an alphabetical index of all the subjects included by them, would complete the outlines of the plan we proposed to sketch. It is presupposed in the views advanced, that we make no pretensions to preserve promiscuous files, and therefore a plea is set up for the continuation of certain portions of them. The method suggested, however, will require, in addition, that some papers should be retained, whole—(and therefore folio volumes,) as it often happens that an article is partly on two sides of a leaf, in such a manner as to forbid is being transferred to a book. Very valuable folio volumes, with the articles marked, (so that they may at once be

distinguished,) and the names of the papers, and the subjects of the articles on account of which they are preserved, indexed, would thus be formed.

To every plan for the accomplishment of a given object, the application of general rules is implied. Newspapers are like "dissolving views." The benefit to be derived from them in full, is to be derived now. Carpe diem. Sieze the opportunity. The next moment will be too late. Another paper will demand your thought. By another scene it will represent the world, and to us, the new light in which our interests are concerned.

It often happens, in the process of thinking, that from the peculiar circumstances under which, for the moment, we are placed, a particular subject, or a by the way train of ideas, or a new suggestion, shall in an unusual degree impress our minds. In this way an extract may have a force, at the time of our making it, that we may not be able afterwards fully to appreciate. It is to be regretted that we should ever surrender to these losses. We should at least earnestly endeavor to maintain the ground; and, if need be, even by artificial means. Notes—notes of life, of all its incidents, of all its associations—these are a Vade mecum almost insuring ready and ripe scholarship. If we do not make notes, that shall help to keep our trains of thought from sliding out of place, yet let us hold on to the article we have selected, but forgotten for what reason. Let us school ourselves to the task of making the sight of it, bring to our recollection the reason of our selecting it. Moreover, if we destroy the article, it may afterwards occur to us, to our regret, that we had an important reason for having selected it.

A book formed according to the plan we have sketched, is an *edition* to every intent concerned, of that part of the newspaper to to which it has reference: with this difference, that as far as its topics are under consideration, the value of the book is greatly enhanced *above* that of the newspaper. It is an unspeakable labor to pore over immense volumes for that which we know to be there, but have no recollection, or only a *misguiding* recoilection, as to where. How much greater the labor, if possible, when we have no knowledge whether or not the volumes contain what we should wish to learn, while yet it is our duty, if they do not, to be assured that such is the case. "I can't help it," is a poor substitute for the omission, when the economics of all our social, educational and political interests are involved. And yet, we are in doubt in this

dilemma, of which to make choice, an insufficient authority, in a volume that is offered, or an impossible task in the investigations to be had. The volume must have a *growth;* or it will happen, as it sometimes indeed does happen, that the general intelligence conferred upon the masses by the press, shall elevate its readers *above* the authorities that neglect it. A treatise, or consecutive discussion of a subject, derives no additional force from arrogating to itself the dignity of a specific title and separate binding. Thought, in our day, is democratic. S * * * *

ARTICLE V.

Biographical Sketch of Dr. Kane.

BY DR. WM. ALDER.

When a man's life is heroic, and his name has passed into history, the world wants to know him personally, intimately. The grave and Rev. chronicler," passing over his beginnings, presents him abruptly in his full grown greatness; men render the admiration earned, but the sympathetic emulation awakened is concerned to know how he grew into his maturity of excellence. This curiosity is not an idleness of the fancy, but a personal interest in the facts that springs out of those aspirations which put every man upon the fulfillment of his own destiny. How came this man to excel—what was in him—what happened to develop it? "Some men are born great; some achieve greatness; some have greatness thrust upon them." How came this man by it? Is it within my reach also, and by what means? History provokes us with such queries as these: Biography answers them.

Doctor Elisha Kent Kane is not quite thirty-four years old, yet he has done more than circumnavigate the globe; he has visited and traversed India, Africa, Europe, South America, the islands of the Pacific, and twice penetrated the Arctic region to the highest latitude attained by civilized man. He has encountered the extremest perils of sea and land, in every climate of the globe; he has discharged in turn the severest duties of the soldier and the seaman; attached to the United States navy as a surgeon, he is, nevertheless, engaged at one time in the coast survey of the tropical ocean, and in a month or two we find him exploring the frigid zone; and all the while that his personal experiences had the character of romantic adventure, he was pushing them in the spirit of scientific and philanthropic enterprise.

As a boy, his instinctive bent impelled him to the indulgence and enjoyment of such adventures as were best fitted to train him for the work before him. His collegiate studies suffered some postponement while his physical qualities pressed for their necessary training and

discipline. It was almost in the spirit of truancy that he explored the Blue mountains of Virginia, as a student of geology, under the guidance of Professor Rodgers, and cultivated at once his hardihood of vital energy and those elements of natural science which were to qualify him for his after services in the field of physical geography. But in due time he returned to the pursuit of literature, and achieved the usual honors, as well as though his college studies had suffered no diversion—his muscles and nerves were educated, and his brain lost nothing by the indirectness of its development, but was rather corroborated for all the uses which it has served since. He graduated at the University of Pennsylvania—first, in its collegiate, and afterwards in its medical department. His special relishes in study indicated his natural drift: chemistry and surgery; natural science in its most intimate converse with substance, and the remedial art in its most heroic function. He went out from his *Alma Mater* a good classical scholar, a good chemist, mineralogist, astronomer, and surgeon. But he lacked or thought he lacked, robustness of frame and soundness of health. He solicited an appointment in the navy, and upon his admission, demanded active service. He was appointed upon the diplomatic staff as surgeon to the first American Embassy to China. This position gave him opportunity to explore the Phillipine Islands, which he effected mainly on foot. He was the first man who descended into the crater of Taal; lowered more than a hundred feet by a bamboo rope from the overhanging cliff, and clambering down some seven hundred more through the scoriæ, he made a topographical sketch of the interior of this great volcano, collected a bottle of sulphurous acid from the very mouth of the crater; and although he was drawn up almost senseless, he brought with him his portrait of this hideous cavern, and the specimens which it afforded.

Before he returned from this trip, he had ascended the Himalayas, and triangulated Greece on foot; he had visited Ceylon, the Upper Nile and all the mythologic region of Egypt; traversing the route and making the acquaintance of the learned Lepsius, who was then prosecuting his archæological researches.

At home again, when the Mexican war broke out, he asked to be removed from the Philadelphia Navy Yard to the field of a more congenial service: but the government sent him to the coast of Africa. Here he visited the Slave factories, from Cape Mount to the river Bonny, and through the infamous Da Souza, got access to the baracoons of Dahomey, and contracted, besides, the Coast fever, from the effects of which he has never entirely recovered.

From Africa he returned before the close of the Mexican war, and believing that his constitution was broken, and his health rapidly going, he called upon President Polk, and demanded an opportunity for service that might crowd the little remnant of life with achievements in keeping with his ambition; the President just then embarrassed by a temporary non-intercourse with General Scott, charged the Doctor with despatches to the General, of great moment and urgency, which must be carried through a region occupied by the enemy. This embassy was marked by an adventure so romantic, and so illustrative of the character of the man, that we are tempted to detail it.

On his way to the Gulf he secured a horse in Kentucky, such as a knight-errant would have chosen for the companion and sharer of his adventures. Landed at Vera Cruz, he asked for an escort to convey him to the capital, but the officer in command had no troopers to spare —he must wait, or he must accept, instead, a band of Ruffian Mexicans, called the Spy Company, who had taken to the business of treason and trickery for a livelihood. He accepted them and went forward. Near Puebla his troop encountered a body of Mexicans escorting a number of distinguished officers to Orizaba, among whom were Major General Gaona, Governor of Puebla; his son Maximilian and Gen Torejon, who commanded the brilliant charge of horse at Buena Vista. The surprise was mutual, but the Spy Company had the advantage of the ground. At the first instant of the discovery, and before the rascals fully comprehended their involvement, the Doctor shouted in Spanish, "Bravo! the capital adventure, Colonel, form your line for the charge!" And down they went upon the enemy; Kane and his gallant Kentucky charger ahead. Understanding the principle that sends a tallow candle through a plank, and that the momentum of a body is its weight multiplied by its velocity, he dashed through the opposing force, and turning to engage after breaking their line, he found himself fairly surrounded, and two of the enemy giving him their special attention. One of these was disposed of in an instant by rearing his horse, who with a blow of his fore foot, floored his man; and wheeling suddenly, the Doctor gave the other a sword wound, which opened the external iliac artery, and put him *hors de combat*. This subject of the Doctor's military surgery was the young Maximilian. The brief melee terminated with a cry from the Mexicans, "We surrender." Two of the officers made a dash for an escape, the Doctor pursued them, but soon gave up the chase. When he returned he found his ruffians preparing to massacre the prisoners. As he galloped past the young officer whom he had wounded, he heard him cry, "Senor, save my father." A group of the guerrilla guards were dashing upon the Mexfcans, huddled together, with their lances in rest. He threw himself before them—one of them transfixed his horse, another gave him a severe wound in the groin. He killed the first lieutenant, wounded the second-lieutenant, and blew a part of the Colonel's beard off with the last charge of his six-shooter; then grappling with him and using his fists, he brought the party to terms. The lives of the prisoners were saved, and the Doctor received their swords. As soon as General Gaona could reach his son, who lay at a little distance from the scene of the last struggle, the Doctor found him sitting by him, receiving his last adieus. Shifting the soldier and resuming the surgeon, he secured the artery, and put the wounded man in condition to travel. The ambulance got up for the occasion, contained at once the wounded Maximillian, the wounded second-lieutenant, and the man that had prepared them for slow traveling, himself on his litter, from the lance wound received in the defence of his prisoners! When they reached Puebla, the Doctor's wound proved the worst in the party. He was taken to the Government house, but the old General, in gratitude for his generous services, had him conveyed to his own house. General Childs, American commander at Puebla, hearing of the generosity of his prisoner, discharged him without making any

terms, and the old gentleman became the principal nurse of his captor and benefactor, dividing his attentions between him and his son, who lay wounded in an adjoining room. This illness of our hero was long and doubtful, and he was reported dead to his friends at home.

When he recovered and returned, he was employed in the Coast Survey. While engaged in this service, the Government by its correspondence with Lady Franklin became committed for an attempt at the rescue of Sir John and his ill-starred companions in Arctic discovery. Nothing could be better addressed to the Doctor's governing sentiments than this adventure. The enterprise of Sir John ran exactly in the current of one of his own enthusiasms—the service of natural science combined with heroic personal effort; and, added to this that sort of patriotism which charges itself with its own full share in the execution of national engagements of honor; and besides this cordial assumption of his country's debts and duties, there was no little force in the appeal of a nobly brave spirited woman to the chivalry of the American navy.

He was "bathing in the tepid waters of the Gulf of Mexico, on the 12th of May, 1850," when he received his telegraphic order to proceed forthwith to New York, for duty upon the Arctic expedition. In nine days from that date he was beyond the limits of the United States on his dismal voyage to the North Pole. Of this first American expedition, as is well known to the public, he was the surgeon, the naturalist and the historian. It returned disappointed of its main object, after a winter in the regions of eternal ice and a fifteen month's absence.

Scarcely allowing himself a day to recover from the hardships of this cruise, he set on foot the second attempt, from which he has returned, after verifying by actual observation the long questioned existence of an open sea beyond the latitude of 82°, and beyond the temperature, also, of 100° below the freezing point. His "Personal narrative," published early in 1853, recounts the adventures of the first voyage, and discovers his diversified qualifications for such an enterprise.

The last voyage occupied two winters in the highest latitudes, and two years and a half of uninterrmitted labor, with the risks and responsibilities attendant. He is now preparing the history for publication. But that part of it which best reports his own personal agency, and would most justly present the man to the reader, will of course be suppressed. We would gladly supply it, but as yet this is impossible to us. His journal is private property, the extracts which we may expect will be only too shy of egotism, and his companions have not spoken yet, as some day they will speak, of his conduct throughout the terrible struggles which together they endured.

To form anything like an adequate estimate of this last achievement it is to be recollected that his whole company amounted to but twenty men, and that of this corps or crew, he was the commander in naval phrase: and when we are apprised that his portfolio of scenery, sketched on the spot in pencil, and in water-colors kept fluid over a spirit-lamp, amounts to over three hundred sketches, we have a hint of the extent and variety of the offices he filled on this voyage. He

was in fact the surgeon, sailing-master, astronomer and naturalist, as well as captain and leader of the expedition.

This man of all work and desperate daring and successful doing, is in height about five feet seven inches; in weight, say one hundred and thirty pounds or so, if health and rest would but give him leave to fill up his natural measure. His complexion is fair, his hair brown, and his eyes dark grey, with a hawk look. He is a hunter by every gift and grace and instinct that makes up the character; an excellent shot and a brilliant horseman. He has escaped with whole bones from all his adventures, but he has several wounds which are troublesome; and with such general health as his, most men would call themselves invalids, and live on furlough from all the active duties of life, yet he has won the distinction of being the first civilized man to stand in latitude 82° 30' and gaze upon the open Polar Sea—to reach the northernmost point of land on the globe—to report the lowest temperature ever endured—the heaviest sledge journeys ever performed—and the wildest life that civilized man has successfully undergone; and to return after all to tell the story of his adventures.

The secret spring of all this energy is in his religious enthusiasm—discovered alike in the generous spirit of his adventures in pursuit of science; in his enthusiastic fidelity to duty, and in his heroic maintenance of the point of honor in all his intercourse with men.

In his deportment there is that mixture of shyness and frankness, simplicity and fastidiousness, sandwiched rather than blended, which marks the man of genius, and the monk of industry. He seems confident *in* himself but not *of* himself. His manner is remarkable for celerity of movement, alert attentiveness, quickness of comprehension, rapidity of utterance and sententious compactness of diction, which arise from a habitual watchfulness against the betrayal of his own enthusiasms. He seems to fear that he is boring you, and is always discovering his unwillingness "to sit" for your admiration. If you question him about the handsome official acknowledgments of his services by the British and American governments, or in any way endeavor to turn him upon his own gallant achievements, he hurries you away from the subject to some point of scientific interest which he presumes will more concern and engage yourself; or he says and does something that makes you think he is occupied with his own inferiority in some matter which your conversation presents to him. One is obliged to struggle with him to maintain the tone of respect which his character and achievements deserve; and when the interview is over, a feeling of disappointment remains for the failure in your efforts to ransack the man as you wished, and to render the tribute which you owed him.

We wish we could be sure that he will not, in his forthcoming work give us the drama without its hero; or we wish the expedition and its hero had a chronicler as worthy as he would be were he not the principal character in the story.

Dr. Kane's Narrative of the Expedition, now prrparing, and in process of publication by Messrs. Childs & Peterson, of Philadelphia, will embrace the important discoveries made in the frozen regions, far beyond the reach of all the predecessors of the American exploring party, and their perilous adventures, crowded with romantic incidents, which

in the language of the Secretary of the Navy, "not only excite our wonder, but borrow a novel grandeur from the truly benevolent considerations which animated and nerved him to his task."—*Graham's Magazine, Feb.*, 1856.

ARTICLE VI.

Randall & Jones' Hand Corn Planter.

We had an opportunity of examining this Implement about a year ago, and although we perceived and appreciated the advantages which would attend its use, in case it performed well, yet we did not consider that its working capacity had been sufficiently tested to justify us in recommending it to the public. This point we now regard as settled, and from the statements of many practical farmers, who have used this implement, we are fully warranted in recommending it to the public as being capable of performing all, and even more than the proprietor claims for it.

We are persuaded that the labor saved in planting is only a small part of the advantages to be derived from the use of this implement; for we believe that it is calculated to insure a better stand; that the plants will spring up and grow off more evenly, and moreover that the crop can be cultivated with greater facility than if planted in the ordinary way.

From statements of practical farmers in respect to this corn planter we select the following facts to illustrate its utility:

"The Planter is so simple, that almost any negro of ordinary intelligence, can, in one hour or two, learn to use it efficiently."

"The advantages of the Planter are: 1st. Saving time in working off 30 acres a day instead of 8 acres. 2d. Leaving the ground mellow and loose. 3d. It saves a man, a boy, and two or three horses to each row, in planting, that is to say, in laying off, dropping and covering. 4th. The rows are much straighter, and on that account the crop is easier tended. 5th. The crop is dropped more uniformly, and comes up more rapidly."

"I can put just as many kernels in as I please, and where I please. It comes up quicker and is a great deal easier to cultivate."

"My son, 15 years old, planted 10 acres by 3 o'clock p. m. Ten acres is a light day's work; 15 acres can be done, and I believe 20."

Each of the foregoing extracts are taken from different correspondents: many more of a similar character might be added.

The following notice copied from the *Valley Farmer* is entitled to full confidence:

AGRICULTURAL IMPLEMENTS.

Among the improved implements which have been used in Missouri the past year, and which have given general satisfaction wherever tried, we must place Randall & Jones' Hand Corn Planter first on the list. Our judgment with regard to the superior value of this machine is confirmed by that of some of the best agriculturists in the State. Among others, the Agricultural Society of Howard County where its value has been proved by experience, judged it worthy not only of a premium, but a special Diploma in which the committee say "that they consider the invention one of the first practical utility to the farmer, and one of the greatest labor saving machines of the day."

In our January number last year, we had the pleasure of announcing to our readers that we had just seen it, and gave our first impressions of it. In the February number we gave an accurate description of it, and its manner of putting in the seed, and the proprietor of the patent for this State issued his advertisement in which he made the most liberal promises respecting the amount and quality of work it would perform. It has come up to his promises, so say some of the most respectable correspondents. We learn that over two hundred were sold in this State last year, most of them to the readers of the *Valley Farmer*. Nearly all have been heard from. We have seen their letters, and they unite in giving the most decided testimony to its great value. Some of this testimony our readers have already seen in the May and September numbers of this journal, the other testimonials, with hardly an exception, are of the same tenor. We consider this to be now a tried and proved machine, its character is established, and, as several of the farmers have said, "it must soon become a common farming implement."

We are happy to state also, that while it worked so well last year, and was even declared to be "perfect in its principle," it has been improved in some of its details and workmanship. The proprietor and inventor have taken great pains to ascertain and remedy its defects and to make it as perfect as possible. Dr. Leigh has furnished us with a statement of these improvements which will be found on another page. "The Improved Planter" is now before us. It looks and works admirably and we can commend it to our readers with entire confidence.

ILLINOIS & MISSOURI COAL.

From a gentleman prominently interested in the coal business of St. Louis, we have received what he states is the lowest estimate of the quantity of coal produced from three mines in Illinois and five mines in Missouri and consumed in St. Louis, during 1855: Illinois coal 2,737,500 bushels; Missouri coal 5,475,000 bushels; Total 8,212,500 bushels; and adds that his largest estimate for all the mines during 1855 was 14,600,000 bushels, which at 11 cents a bus., is $1,606,000

COMMERCIAL STATISTICS.

PEORIA.

Though not destined to become a city of the first magnitude, yet Peoria is, in many respects, one of the most interesting cities west of the Alleghany Mountains. Surrounded by a country of great fertility, and situated near an abundant supply of coal, it possesses the essential elements of a manufacturing city in a degree which is not excelled, perhaps, by any other town in the west. Nor is Peoria less fortunately situated in respect to facilities of distributing its productions. Besides the Illinois river and the Michigan and Illinois Canal, affording the means of reaching the northern and southern markets by water, it will not be long before this city will be in full connection with all the great railroad systems of the country. She is now connected with Chicago by the Bureau Valley Railroad. The Peoria and Oquaka Railroad is nearly completed, and by an extension of this line east, 20 miles of which is now completed and in operation, she will soon be in full connection with the Illinois Central Railroad, at Bloomington. There is also a road projected to connect Peoria with Hannibal, Mo.; the work on this line is expected to be commenced and prosecuted with vigor this season. Another road uniting Peoria and Rock Island has also been projected, and from the spirit manifested by the people on the line, we conclude there is no doubt but that this work will be carried out. And should the road from Alton to Rock Island be built, it will afford to Peoria an opportunity of making a connection with Alton and St. Louis by the construction of a short line, which will bring her in direct connection with the railroad systems of the south.

These facts have not been overlooked by the industrious and enterprising people of the west, and the following statistics will show that Peoria is already become a manufacturing city of considerable importance.

A statement of the Manufactories of all kinds in the township and City of Peoria for 1855, copied from Drown's Statistics for 1855:

4 Flouring or Merchant Mills.....	$650,000
3 Distilleries manufacturing Alcohol and Whiskey.....	*502,800

* We have FIVE Distilleries that will be in full operation by the opening of spring. Those Distilleries when doing FULL WORK, are capable of working 3550

5 Door, Sash and Blind, Saw and Planing Mills.....	296,300
9 Cooper and Barrel Factories.....	137,620
7 Wagon and Carriage Factories.....	103,536
2 Potteries of Stone and Earthen-Ware.....	8,200
3 Foundries of Iron and Brass.....	75,000
4 Cabinet Furniture and Chair Factories.....	67,500
3 Plow Manufactories.....	60,600
4 Fanning Mill, Smut and Corn Shelling Factories....	47,000
16 Boot and Shoe Manufactories.....	36,514
5 Saddle and Harness Manufactories.....	36,000
3 Stone Cutting Manufactories in Grave Stone, Caps, Sills, Cornish, &c.	29,800
5 Tin, Copper, Brass and Sheet Iron Establishments.	28,000
3 Candle and Bar-Soap Establishments	26,600
5 Breweries and Lager and Strong Beer.....	24,900
5 Brickyards of Pressed and Sand Mould and Slop Brick.....	20,750
1 Fish Oil Factory (fish from our lake and river).....	13,500
6 Cigar and Tobacco Manufactories.....	12,550
1 Lightning Rod Manufactory.....	10,500
1 Lucifer Match "	7,500
2 Agricultural and Threshing Machine Manuf's.....	7,000
2 Merchant Tailor Establishments.....	6,500
3 Hat and Cap "	3,500
1 Wood Turning, &c. "	2,600
1 Silver Plating "	2,000
1 Bottled Soda "	2,000
1 Sarsaparilla Beer "	1,000
1 Tannery (of calf and sheep skins).....	1,000
1 Brush (floor, scrub and shoe) Factory.....	400
Total.....	$2,221,470

In addition to the agricultural implements manufactured in the city, there have been sold in the city and county the following implements sent here for sale on commission:

144 Reapers from	$130 to	$200 each,	making	$22,870
30 Threshers,	325	330	"	9,855
34 Cornshellers	70	75	"	2,465
20 Mowers, at	130		"	2,600
19 "Little Giants,"	47 for grinding corn and cob,			893
Total				$38,683

bushels daily, making for the year 1,107,600 barrels of HIGHWINES, or equal to 100,000 barrels PROOF LIQUOR, worth $1,000,000, to which add the stock fed by them (cattle and hogs,) worth say $500,000. The FLOUR manufactured at three of those (having flouring-mills attached,) it is calculated, will amount to $500,000, which would swell the whole amount annually to $2,000,000, and employ directly and indirectly 500 men.

There are nine Lumber-yards in the city, at which there has been sold the past season 7,715,284 feet of lumber; 6,805,500 shingles; and 3,102,800 laths, amounting to $240,742.

All or nearly all of this lumber has been sold to go into the country; as we have 21 carpenters and master-builders who make out their bills of lumber, &c., for building in the city and send to Chicago, and elsewhere for it.

ANNUAL CENSUS OF PEORIA. — In 1831, the city or town of Peoria contained eight families numbering about 70
In 1834, as then reported, containing 35 families, No..... 170
In January, 1844, as taken by S. De Witt Drown..... 1,619
" 1845, " " " 1,934
" 1846, " " " 2,392
" 1847, " " " 3,014
" 1848, " " " 4,079
In March, 1849, " John E. Carter.....*4,601
In February, 1850, " S. D. Witt Drown.....*5,890
" 1851, " " " *6,202
" 1852, " John C. Heyl..... 7,316
" 1853, " " " 8,285
In March, 1854, " S. De Witt Drown.....10,155
In July, 1855, " " " 11,923

Increase in the last five years is 6,033.

* The years the cholera prevailed in our river towns.

Taxable property assessed in Peoria in 1855: Personal property $764,705; Real estate, $2,351,706; Total, $3,116,411.

Imports of leading articles at Peoria in 1855:

Barley, bushels	20,587	Flour, barrels	71,790
Beeves, No.	2,000	Flax-seed, bushels.....	6,500
Broom corn, tons.....	250	Hogs, slaughtered and brought in.....	60,000
Butter and cheese, lbs.	66,575	Rye, buihels.....	29,163
Coal, bushels.....	645,656	Salt, do.	28,556
Corn, do. 1,356,503		Wheat, do.	594,533
Dried Hides, No.....	11,715	Wool, lbs.....	150,000
Fish & fish-oil, caught in lake & river, value $13,500			

Sale of Dry Goods and Groceries in 1855:

15 Forwarding and produce merchants	
51 Grocery and Provision Stores	$156,260
23 Merchant tailors and clothing stores.....	248,510
24 Dry-good stores	466,512
19 Millinery and fancy goods.....	41,725
18 Liquor and cigar shops.....	67,105
13 Drug and medicine stores.....	185 500
7 Yankee-notion and toy shops.....	81,250
7 Silversmith, clock and jewelry stores.....	27,412
5 Gun and locksmiths.....	5,075
5 Hardware, copper, tin and stove.....	214,050

3 China, glass and queensware	21,170
3 Book and stationery	44,500
2 Soap and candle	22,700
1 Music store	10,000
	$1,591,769

Amount of freight paid by merchants, &c., of this city to steamers and other boats, about $60,000 00
Amount paid to Bureau Valley Railroad, about..... 70,391 78

Total amount..... $130 391 78

The number of arrivals of steamers at our port during the year is about six hundred. The amount collected from steamers and other boats as harbor fees, is about one thousand dollars. This is required by the city to be expended in improving the harbor. The Peoria and Bureau Valley Railroad has brought to this place about six thousand seven hundred and twenty-five tons of freight, and has probably shipped from here one-third more.

Imports of Iron to United States. Imports of Iron to Missouri.

From the Report of the Secretary of the Treasury on the state of the finances, page 131, we quote: "Iron and manufactures of iron and iron and steel imported (to United States,) from foreign countries, during the year ending June 30, 1855, $22,980,728."

From a leading importer of pig metal and Railroad iron in St. Louis we learn that about 2000 tons of pig metal and 10,000 tons of iron rails were imported from Great Britain to Missouri during the year 1855. Price of Railroad iron delivered in St. Louis about $68 a ton, price of Scotch pig delivered in St. Louis, $35 a ton.

Value of Railroad iron delivered in St. Louis $680,000
Value of pig iron " " 70,000

From a leading iron merchant of St. Louis we learn that the imports of iron from the Ohio Valley to Missouri, the pig metal being mainly Tennessee, are: Pig iron, about $1,250,000
Bar, boiler sheet iron, &c. 2,000,000

Total imported from Ohio Valley..... $3,250,000
Total imported from Great Britain..... 750,000

$4,000,000

To this should be added the imports of steel, hardware, &c., imported from Great Britain direct to the port of St. Louis, in order to show the full amount of iron imports to Missouri. This we hope to show next month.

STATISTICAL NOTE.—We had intended to publish the Commercial Statistics of St. Louis this month, but the Statistics of Peoria and the iron interests of Missouri will postpone them until March.

DEPARTMENT OF PUBLIC IMPROVEMENT.

Iron Man of Missouri.

The farmer of Missouri has laid the broad foundations of the civilization of the State, the merchant has collected materials used in the building, but to complete the State into a structure of real, civil splendor, is the business and aspiring design of the mechanic of Missouri.

As the leading representative of the interests of the mechanics, the finger of destiny is pointed at the Iron man of Missouri.

In compliance with the indication of "Manifest Destiny," the people of Missouri should rally around their Iron Man, and with liberal inducements—freedom from taxation on machinery and industrial capital, and with financial facilities—and, if necessary, with a bonus for his services—call him out immediately to assume the high duty, for which he is intended and capable, of completing the material civilization of the State, furnishing it with comforts derived from the solid wealth of gold and silver, adorning it with the splendor of mechanic and fine arts, and maintaining it as a charming abode for learning and divinity.

At the Iron Mountain Region only, forty miles west of Ste. Genevieve, and eighty miles south of St. Louis, masses of iron are found in their natural state, above the surface of the vallies, which masses of iron, on the estimate of only $25 a ton for them in a manufactured state, would be worth $5,000,000,000.

Thanks to the enterprising and liberal spirit of the people of Missouri, we have high authority — record evidence — on this point.

Prof. G. C. SWALLOW, State Geologist, in his report of the survey, says:

"There is ore enough of the very best quality, within a few miles of Pilot Knob and Iron Mountain, above the surface of the vallies, to furnish 1,000,000, tons per annum, of manufactured iron, for the next two hundred years."

At the low price of $25 a ton, this item of 200,000,000 tons of manufactured iron, is worth $5,000,000,000.

This item, however, indicates only a small part of the vast resource of the iron wealth of Missouri; for, besides that iron is found in immense bodies, in various other portions of the State, at the base of the Iron Mountain, an Artesian well has been dug 160

feet deep, at which depth it was still in the iron ore; which body of iron ore, according to the opinion of Prof. Swallow, "extends downwards indefinitely, enlarging as it descends. But on the supposition that it continues of the same size" (as the base of the mountain mass) "every foot of descent will give over 3,000;000 tons of ore"; and on this basis the depth of 160 feet, would yield 480,000,000 tons of ore.

The average product of this ore in the furnace is stated at 56 per cent. metallic iron.

Dr. A. LITTON, Chemist and Assistant Geologist, states that the analysis of a specimen gave—

"Silica.....0, 66
Peroide of iron.....99, 33=69, 55 iron; and in which I could not discover a trace of titanic or phosphoric acid, or lime, or alumina, for each of which I searched in this specimen."

But on an estimate that it yields only 60 per cent metal, there is found to be, between the base of the mountain and a depth of 160 feet beneath, an equivalent of 288,000,000 tons of metallic iron, which metallic iron, at the low price of $25 a ton would be worth $7,200,000,000. And thus in the progress of the Geological survey many other items of similar significance, will be discovered among the masses of iron ore in other portions of Missouri.

Dr. Litton states that an analysis of a specimen of iron ore from Pilot Knob, gave—

"Silica.....12, 03
Alumina..... 1, 61
Peroxide of iron, 86, 07, equal to 60, 27 per cent of iron."

About other spurs of that Iron Mountain region, he says:

"The ores obtained from the Shepherd Mountain, are the magnetic, the specular, and a mixture of the two. In a specimen of the last variety, from which the magnetic portion was carefully separated by a magnet, there was found twenty per cent of magnetic iron ore.

"Two specimens of ore from this mountain were analyzed and gave the following results. Both were compact, and the second was taken from the greater depth:

1 gave Silica.....1,04
Alumina..... ,60
Peroxide of iron 98,30 equal to 68, 83 iron.
2 gave Silica.....1,81
Alumina.....Trace
Peroxide of iron 99,18."

An analysis of a specimen from the Buford mountain, five miles south of Pilot Knob, made by Dr. Litton in 1852, for Col. Bogy gave peroxide of iron 95, 16. A specimen from the Big Bogy mountain, in the same region, analyzed at the same time as the above, gave peroxide of iron 99, 08. A specimen from Russell mountain, south west of Pilot Knob, gave by analysis, peroxide of iron 98, 81. Besides mentioning the Shut-in, which is about four miles south east of Pilot Knob, as containing a compact specular variety of ore, very rich and said to work easily, he states that: "a brown hematite ore, of a pure and most excellent quality, has been found in Town. 34, R. 3. E., Sec. 21," which section is about five miles north of west from Pilot Knob.

The Iron Mountain is in St. Francis county, and Pilot Knob in Madison county, yet these masses are only a moiety of the iron ore in these two counties, though the Geological report represents that the height of the Iron mountain above its base at the Railroad, is 228 feet, that of Pilot Knob is 581 feet above the level on which the bloomery stands, and that the height of the Shepherd mountain is 660 feet above its base, which is about a mile from that of Pilot Knob and that of the two latter "their summits are distant from each other 6987 feet, or about one and a third miles," while Franklin, Crawford, Washington and Wayne counties contain, probably, double the amount of iron ore to be found in St. Francis in Madison; as by the authority of Mr. Massey, of Crawford, a ridge starting in Crawford and extending forty miles towards the south east, is loaded and apparently filled with iron ore; and in the opinion of Dr. Relfe of Washington, "Wayne county contains more iron ore than any county in the State;" neither Crawford nor Wayne having yet been surveyed by our laborious State Geologist, and the iron of Washington and Franklin only glanced at by Dr. Litton, who informs us on the authority of Col. McIlvaine that—

"The first bar of iron made out of pig metal in Missouri was made on Cedar Creek (Washington county) in May 1825, and the first blooms were made in 1832. Though ore was abundant and easily smelted, the great expense of transportation, however, in a new and thinly settled country, soon induced the abandonment of the enterprise." And Dr. Litton adds that; "the next blast furnace was, probably, erected in 1828 by Mr. Massy, in Crawford, which has been in successful operation up to the present time; but not having been able to visit this, I defer any report upon it."

"In Franklin county there is but one iron furnace, though there is doubtless such an abundance of iron ore there that many furna-

ces could be kept constantly supplied. This furnace was formerly known by the name of the Moselle, but is now designated as the Furnace of the Franklin Iron Mining Company, and is in Town. 42 N., R. 1 E., Sec. 14 S. E. ¼."

The ore, he says, is a brown hematite, intermixed with yellow ochre, and found in banks of ridge shape masses, presenting no appearance of stratification. He gives no figures indicating the amount of ore to be found or iron made at this place, but states that:

"An analysis of a specimen from one of these banks gave—

Silica	1, 36
Alumina	1, 04
Peroxide of iron	82, 94
Water	13, 54

In this specimen I could not find a trace of sulphur or phosphoric acid."

From all of which information—that gained from reliable men long ago, and by the confirmation of the same, obtained from the Geological survey, so far as it has been extended, which survey has increased the estimates heretofore made of the amount of iron ore above the base of the Iron Mountain, from 212,000,000 tons to 230,187,375 tons,—we may reasonably conclude that when Washington and Franklin, Crawford and Wayne counties are thoroughly explored by the State geologist, he will confirm our opinion that these four counties contain, probably, twice as much iron ore as can be found in the counties of St. Francis and Madison.

But it was shown that in only a small portion of St. Francis and Madison counties, within a few miles of Pilot Knob and Iron mountain, above the surface of the vallies, there was ore enough, when manufactured into iron, and valued at the low price of $25 a ton, to be worth $5,000.000,000, and it was also shown by reasonable estimates made on the indications of nature, together with data derived from the artesian well, at the base of the Iron mountain, that between the base of the mountain and the depth of 160 feet beneath, there was ore enough to be worth on the above conditions more than $7,000,000,000.

Here are two items of the iron resources of Missouri, well ascertained to be capable of being realized, amounting in value to more than $12,000,000,000.

Yet these two items are believed to embrace not one-third of the amount of iron capable of being easily realized from St. Francis

and Madison counties; and if the iron products of the four other counties above mentioned, would, as estimated, double the amount of these two counties, the amount of iron to which easy access may be had in the six counties on the above basis—value when manufactured, $25 a ton—is worth more than $100,000,000,000.

The St. Louis and Iron Mountain, and the south west Missouri railroads penetrate these regions.

But important questions here arise: what quantity and what quality of coal is found in the State of Missouri, by which the iron may be manufactured?

As answers to these questions, we will make a few significant quotations from the report of Prof Swallow, on the Geological Survey.

In discovering these answers—by their simple value—he has more than repaid the State for all the costs attending the survey, although the answer to the question of quality is not yet made so explicit, as we may expect to learn it in his next report.

After alluding to detached coal measures, and local deposits of cannel and bituminous coal, and excluding them from his calculation, he says:

"We have an area of 26,887 square miles of the regular coal measures. If the average thickness of workable coal be one foot only, it will give 26,887,000,000* tons, for the whole area occupied by coal rocks. But in many places the thickness of the workable beds is over fifteen feet; and the least estimate that can be made for the whole area is five feet. This will give 134,435,000,000 tons of good available coal in our State."

"Some of the beds of the cannel varieties could furnish a very large supply of an excellent article for gas and those manufacturing purposes, where a light, pure coal producing an abundance of flame is desirable."

"When our coals are all collected and have been subjected to analyses and practical tests, we shall be prepared to speak with more certainty of their qualities and adaptation, to the various manufacturing purposes. As yet we can judge of them only by their physical properties, and the manner in which they burn on the grate. But there can be no reasonable doubt that our various beds will furnish any desirable quantities adapted to all the uses, to which bituminous coal is applied."

This immense coal measure is mainly in the counties adjacent

* The Mining Engineers of England allow 1,000,000 tons per square mile for every foot of workable coal.

to the Missouri river, and to the Pacific, the North Missouri, and the Hannibal and St. Joseph Railroads.

One of the detached coal measures is found in St. Louis; and from the geological map of this county by Dr. B. F. SHUMARD, Palæontologist and Assistant Geologist, about one third of the county is represented as composed of coal measures. This small item amounts to more than 100,000 acres of coal fields.

Dr. Shumard, in his report on St. Louis county states:

"COAL MEASURES.—This formation, so important in an economical point of view occupies an area of about 160 square miles, and lies chiefly in the north east portion of the county."

"Beneath the sandstone (Micaceous sandstone) I have just described, and above the St. Louis Limestone, we find those members of the lower coal series in which, probably, occur all the important deposits of coal in the county. These prevail over about two-thirds of the whole area, occupied by the coal formation, and consist of beds of clay, fire-clay, limestone, shale and coal."

At Gartside's Coal-mines, three and one-half miles S. W. of St. Louis, and 43 feet beneath the upper surface of the soil, which is 20 feet deep, a coal seam from four to five feet thick, is represented based on a foot wall of fire-clay.

At Mr. B. F. Buchanan's, on the west side of the river Des Peres, six miles west of St. Louis, and thirty-five feet beneath the surface of the ground, is found a seam of coal five feet thick.

At Watkin's coal-bank, near the Mississippi, and about seven miles below the mouth of the Missouri river, a seam of coal eighteen inches thick, is found four feet and two inches beneath the bluff formation. Dr. Shumard continues:

"COAL.—This important mineral substance has been chiefly mined along the southern edge of the formation. All the workings here are on the same stratum, which varies from two to five feet in thickness, and is nearly horizontal.

"On land belonging to Mr Russell, a third of a mile south of Gartside's, coal crops out on the western slope of a hill fifty feet below the top. The bed is worked by Mr. Russell, by means of five shafts sunk on the top of the hill.

"The deepest of these is forty-five feet, the shallowest thirty feet, and the bed of coal varies from four feet eight inches to five feet in thickness.

"But the mines that have been, probably, worked most extensively in the county, are those of Messrs. Hunt & McDonald, 3 miles from the Court House. The land here is about of the same elevation as at Russell's mines, and the coal is reached by a number of shafts, which vary from 22 to 38 feet in depth. The bed is

from three to 6 feet thick, but the common thickness of the workable coal is about five feet. Mr. Hunt informed me that, during the summer months, he employed about sixty hands, and during the winter 150. Messrs. Hunt & McDonald sunk an artesian well on their land to the depth of one hundred feet, and at twenty feet below the bed now being worked, struck another stratum of coal, 18 inches thick. This fact is of some importance, as showing the existence of more than one bed in this part of the coal district. It is very probable that this eighteen inch stratum is coextensive with the thick bed above it."

After mentioning nine other localities in St. Louis county where coal is found, and for reasons stated concluding: "it is, therefore pretty evident, that we have in St. Louis county, at least three beds of coal beneath the feruginous sandstone: viz., an eighteen inch stratum below, and an eight inch stratum above the main workable bed," Dr. Shumard adds that "the coal of this county is all of the bituminous variety, burns with a good flame and yields a grey ash." He says it sometimes contains sulphate of iron, and also crystaline carbonate of lime, while at other times it is comparatively free from these substances.

A very valuable mine in this coal measure is reported to be lately discovered, along the line of the North Missouri Railroad, about half way between St. Charles and St. Louis. We were informed by the Chief Engineer of the North Missouri Railroad, that the seam of coal is from five to six feet thick.

Now although Dr. Shumard is of opinion that there are, in St. Louis county, three beds of coal, and that where the coal has been chiefly mined, the main workable bed varies from two to five feet in thickness, yet if the main workable bed only be considered, and its thickness estimated to be only three feet, on an average throughout the area of this whole coal measure, we find that we have 480,000,000 tons of coal in the fields of St. Louis County.

An ordinance of the City of St. Louis declares, that every weigher of coal "shall compute 80 pounds avoirdupois to be a bushel."

Although in this mid-winter—January, 1856—the price of coal has ranged in the streets of St. Louis from 12 to 30 cents per bushel, yet the yearly average price, agreed upon by contract with a majority of the manufacturers in the City is 11 cents per bushel. Taking this last figure as a basis of price, we find that the yearly average value of Missouri coal in St. Louis is $3, 08 a ton. But reducing this price to the round numbers of $3, 00 a ton, we find

that the amount of coal in St. Louis county, when delivered in the city, is worth $1,440,000,000.

From all of which data it is manifest that the quantity of coal easy of access in Missouri, is sufficient, and the quality may reasonably be inferred, and soon proved to be equal to the largest demand that human energies can reach, according to the clearest foresight, for centuries, in the development of the various manufacturing interests, even though they should be developed with a force passing that of England.

Independent of the influence which the main body of coal—134,435,000,000 tons—must exert in the development of the iron interests of the State, it is proper for the people of Missouri to know that, at the present yearly average price, for Missouri coal, delivered in St. Louis, $3, 00 a ton, the contents of the 26,887 square miles of coal fields in Missouri, described by Prof. Swallow, is worth $403,305,000,000.

On this calculation, every square mile of this area contains, on an average, $15,000,000 worth of coal, delivered at present value; and each acre of the same contains, on the same terms, over $20,000 worth.

Although the contrast is startling and excites humiliation, yet still the fact is that vast acres of these lands, containing as above shown on an average, over $20,000 worth of coal each, have not yet been sold for $1, 25 an acre.

Why it may be asked, have the people of the State of Missouri, been sleeping 35 years in ignorance and want on this bed of coal, and on their mountains of iron? The answer is because they have not until now opened their eyes to see the wealth and understand the information they can gain by means of Railroads and Geological surveys; and because their past dreaming generation have been deluded to send their provisions and bread-stuffs, which have sprung with luxuriance from their fertile soil, to foreign lands, for the purpose of buying the products made from the coal beds and iron mines of Great Britain; thus binding themselves as servants under English lords for their goods, wares and merchandize, while they should have declared and maintained their independence as American sovereigns, above English lords, by calling on their own men to arise as manufacturers, and by aiding them with grants of financial facilities and freedom from taxation on their industrial capital, and even, if necessary, with a bonus for their services—

on the same principal that bounties are granted by the General Government to the soldiers of war—and thus also providing for a domestic consumption of their provisions and breadstuffs.

And now, although the eyes of the people of Missouri are opened on their vast beds of coal and mountains of iron, worth together as above shown, when delivered in market, more than $500,000,000,000, yet still, all this wealth and information—these talents to unjust stewards—which have heretofore been buried in their ground will remain in the ground, without yielding any interest, worth no more than as many common rocks, unless they arouse themselves and rally around their manufacturers; and in this warfare for material liberty, give the highest rank to the Iron man of Missouri.

The Iron man of England now beats his servants the Missourians, with his rods. We know his material means and his domineering spirit. We have often heretofore invoked the dormant spirit of Missourians, and urged them to arise and free themselves from this disgrace they are enduring. We have herein shown immense, neglected, material means of resistance. Let their eagle spirit only equal their real means, and the lion tyranny of English iron lords will crouch at the feet of the Iron man of Missouri.

Do not the cheeks of Missourians and of every American tingle with the fire of shame as they read the history of the iron bondage which England has rivited on the people of the United States, from the very time our political bondage, under the same power, was broken by the Revolutionary war?

Let us look again at the facts as they were heretofore published, March, 1854, in the *Western Journal and Civilian*, Vol. XI, page 445:

"In 1740 the 59 neglected forges of Great Britain produced only 17,000 tons of iron; in 1852 her thousand protected furnaces and mills rolled out about 3,000,000 tons. Prior to 1776 she imported her iron from the colony of New Jersey to supply her home market. In the 78th year of Independence, she exports to the United States 500,000 tons of manufactured Iron. Her mines constitute the most productive source of national wealth in the world."

And let us read the progress of the United Kingdom in this direction as it is seen in the *Mining Magazine*, Dec. 1855, Vol. 5, page 460:

"The production of crude iron during the past year (1854, in the United Kingdom,) exceeds 3,500,000 tons: and the produc-

tion of malleable iron amounted to nearly 2,000,000 tons; value in the manufactured form at current prices (English money) 25 millions; the number of operatives employed in the manufacture, including those engaged in the allied operations of quarrying and extracting the minerals 238,000; and in giving motion to the various machines and exciting combustion in the furnaces, there were 2120 steam engines of an aggregate power of 242,000 horses."

And let us mark the humiliating position occupied by England in relation to this business in the earlier part of the last century, before her iron enterprises were energetically started. We quote from the *United States Mining Journal* of December 26th, 1855:

"From 1710 to 1718 the annual average of iron imported into England was 17,000 tons; the whole production of England during the same time averaged only about 18,000 tons annually. About the year 1715, says a cotemporary writer, "nearly 20.000 tons of iron were imported from Sweden, Germany, and Russia yearly, amounting to a yearly tribute of $1,200,000 paid to the foreign mining and manufacturing interests."

But the bold spirit of Englishmen could not endure this indignity, which they have heaped upon the Americans since the close of the war of Independence; and a duty of $10 a ton was established in England to save their money, and aid in making their own iron works.

And as we are advised by Dr. Elder, of Pennsylvania, in a lecture from which extracts were published in the *American Mining Chronicle* of 19th Jan., 1856:

"In 1750 she passed an act to encourage the importation of pig iron from the colonies, because charcoal had become nearly exhausted at home; and this act forbade the people of these colonies to erect tilt-hammers, slitting or rolling mills, plating forges and furnaces for making steel; and commanded that those already erected should not be carried on. The previous duty on pig iron was taken off, but in 1783, mineral coal was substituted for charcoal in the manufacture, and in 1787 a duty of 27½ per cent. was laid on, and protection amply afforded as soon as the modern method of smelting made a tariff serviceable to her own interests and conformable to her policy. Further to guard the superiority she has attained, in 1785 she prohibited the export of tools, engines, models, or plans, under the penalty of one year's imprisonment £200, and confiscation of the articles intended to be shipped, and for enticing a workman, one year's imprisonment and £500 fine. Thirty-five years ago, an Irish blacksmith swore himself through the custom-house, as a clerk, to meet the requisition of the law."

"Cutlery and all manufactures of iron and steel were constantly guarded in the same spirit, and taxed or prohibited in the ratio that they afforded employment to labor and profit to capital."

Such is the policy that was pursued by England to raise herself from the degredation of 1715 and 1783, and to crush the Americans from their independence in 1776, when they threw English goods in the sea, to their bondage in 1856, when with wheat-bread and roast-beef, the Americans wait like slaves on their English lords, who, in return for this menial service, bind Americans with State bonds and with bars of foreign iron, and tie their victims hand and foot by goods of cotton raised by the negro slave.

While the Congress of the United States refuses to resent this indignity which England is imposing on Americans,—while Congress is unwilling to grant adequate protection to that gallant band of patriotic citizens,—the mechanics of the land,—who have struggled to resist their subjugation under the arts of England,—while Congress seems inclined to expose American citizens to still more degrading indignities, by giving England freeer scope to break down the struggling spirit of our own iron manufacturers,—while Congress is enslaving itself with the subject of Negro slavery, being unable during two months, ending with January, 1856, to organize itself on account of the negro slavery obstacle:—while the prospect for aid from the General Government has thus grown darker and darker, until it is now positively black:—let the people of Missouri, relying on their own enlightened judgment and energetic spirit, prepare and pass laws to promote their mining and manufacturing interests, as they have gallantly done to complete their judicious, main, leading, trunk system of Railroads.

Let capital be freely invested and invited for investment in joint stock companies, with freedom from taxation and free banking facilities on State bonds.

Let each and every man, woman, and child resolve and act, on a principle of honor, to patronize and maintain their own institutions and their own independence against foreign aggressions. Here is the richest source of hope for the honor of our country; for if patriotism be dead in the body of politicians, thank God, it still lives in the hearts of the people.

And when this spirit is truly aroused, and this policy boldly pursued, with an iron will and hearts as true as steel, then every citizen within her borders may pride himself, that he is an IRON MAN OF MISSOURI, and she the IRON STATE OF THE UNION.

American arts will then defy English power and diplomacy.

St. Louis now manufactures $5,000,000 worth of iron works a year, almost entirely from metal and bar imported into Missouri.

Missouri, which has produced from the ore, during 1855, only 14,200 tons of manufactured iron, blooms and metal together, averaging about $35 a ton and amounting in total value to $500,000,—Missouri, which can, before 1860, produce enough manufactured iron to supply the wants of the Mississippi Valley,—Missouri can reverse the current of trade with Europe, and make London tributary to St. Louis.

In payment for corn and cotton, loads of gold and silver, instead of going away for iron, will come to us, brought by English lords, as a tribute to our mechanical sovereignty.

Agriculture and commerce will then flourish with new vigor, sustained by additional thousands of well paid home consumers who circulate their money throughout the community in the purchase of provisions, breadstuffs, drygoods, groceries and real estate; the fine arts and sciences will bloom in our midst, disclosing beauties and principles now unknown; schools and colleges, institutes and churches, of charity, learning, arts and divinity, will arise in profusion around us, with architectural grandeur and glorious spires pointing to heaven; civil and religious liberty will here polish the manners and refine the spirit, extending their beneficience to distant lands, while they are forming the highest tone of moral purity and power among our own people.

Missouri Iron.

METAL AND BLOOMS PRODUCED FROM ORE IN 1855.

The St. Louis and Iron Mountain Railroad and the South-west Missouri Railroad, which penetrate the iron regions of Missouri, are not yet finished; and, although the Iron Mountain Railroad is bound to be completed by the 1st of December, 1856, according to contract, and although 2000 laborers are at work along the lines, yet, from their present progress and prospects, neither of these roads will reach their respective iron regions until sometime in the year 1857.

We mention these facts as apologies, for the small amount of metal and blooms produced from the iron ore in Missouri in 1855; for the cost of present transportation to market forbids the propri-

ety of erecting any more furnaces and forges than are already built, and also prevents these already erected from producing more than half their capacity.

The works in operation for converting iron from ore in Missouri, in 1855, were: three furnaces at the Iron Mountain, and one forge with 10 fires, called Vallé Forge, near Farmington, in St. Francis county; two furnaces and one forge with eight fires, at Pilot Knob, in Madison county; one furnace in Franklin county; and one furnace and one forge in Crawford county.

We have received accurate figures from the iron works in St. Francis, Madison and Franklin counties; and from the best information obtained of the Crawford county works, we conclude that the total iron products of these four counties, during 1855, were:

Pig metal . .	12,500 tons
Wrought blooms . .	1,700 tons
Amount of iron from ore .	14,200 tons.

The value of Missouri pig metal has ranged, during the year, from $30 to $35 a ton. We have estimated the average at $32 a ton; and the average value of Missouri blooms at Ste. Genevieve is stated at $60 a ton.

At these average rates the value of iron made from the ore in Missouri, during 1855, was:

Pig metal	12,500 tons,	Value $400,000
Blooms	1,700 tons,	Value $102,000
Total iron	14,200 tons,	Value $502,000

Furnace No. 3, at the Iron Mountain, which made, during the month of May, 1855, in its first blast, 443 tons of pig metal, being more than 14 tons a day,—which furnace was particularly described in the *Western Journal & Civilian*, of July, 1855,—this wonderful furnace, which was idle during last summer and fall, made its first cast, on the second blast, on the first day of December, 1855, and working on cold blast from the 1st to the 17th of Decemb., and since then on hot blast, yielded, during its 1st month, 2d blast, 320 tons of metal; 2d month, 2d blast, 525 tons of metal.

Mr. John G. Scott is the energetic master of this famous furnace No. 3, as also of all the Iron Mountain works.

Hon. C. C. Ziegler advises us that this furnace produced, in January, 1856, 20 tons in one day.

If this furnace continues, during the year, to yield metal at the

average rate during January—17 tons a day—and if the six other furnaces in Missouri should yield on an average, during this year, each, one half as much; the amount of pig metal produced in Missouri, during 1856, will be 25,000 tons.

We trust that this figure may be practically realized; and that also, by doubling the amount of blooms, Missouri may make out of her iron ore, during 1856, $1,000,000.

Great Britain has 1000, but Missouri only 7 furnaces. Before four years pass away, Missouri should have 70 furnaces in operation, and produce 250,000 tons of metal, worth at present price $8,000,000.

This metal must be remelted in Fonndries and Rolling Mills, and converted into machinery, into Steamboat, Railroad, building and other materials, and thus more than doubled in value.

Missouri alone, and for only the rails of her roads, must pay for iron, at $75 a ton, $9,000,000.

The other States and the Territories west of the Mississippi river will soon swell a demand for iron here to $50,000,000 worth.

Missouri has the natural means to supply this demand at her doors, and to retain these $50,000,000 at home; England has heretofore supplied this demand, and taken our money away. A struggle here arises: and Missouri as "England expects every man to do his duty."

Manufactures of Iron in St. Louis,—Saw Works.

In preceding numbers of our Journal, we have represented that the value of the yearly products of the iron manufactures of St. Louis was averaging $5,000,000. In our number for January, 1856, we gave a list of thirty of the leading establishments engaged in this industrial pursuit, and a sketch of two works devoted to Steamboat and Railroad business, with arguments in favor of the policy of concentrating capital for the purpose of building up these Iron Institutions, which are now most essential to the prosperity of Missouri. And we hope to continue in this train of arguments, until the United States become free from the iron yoke of the United Kingdom.

While collecting the data upon which we have based our opinion of the value of the products of the iron manufactures of St. Louis, we observed the business transpiring throughout the city at the

rate stated; but, as several—about ten—of the establishments heretofore mentioned, commenced operations during the year 1855, it will be proper to calculate the year, according to the dates of the fiscal year of the General Government, in order to give a fair representation of the yearly business of the aforementioned 30 iron works of St. Louis; so that, on the 30th of June, 1856, they will have produced $5,000,000, worth of manufactured articles in a year, we have not the least doubt, but on the contrary a strong conviction that they will have exceeded this figure.

As a positive result of the business during the year 1855, of 5 of the oldest and largest works: viz., Mississippi Foundry, by Gaty, McCune & Co.; Broadway Foundry, by Kingsland & Cuddy; Eagle Foundry, by Clark, Renfrew & Co.; Empire Stove works, by Bridge & Bro.; and Excelsior Stove Works, by Giles F. Filley; we have the satisfaction of announcing their number of workmen, their cash paid workmen, and their value of products, slightly reduced from the sum of their statements, to be presented in round numbers:

Number of workmen 870; Cash paid workmen, $450,000; Value of products $1,900,000.

The number of workmen employed in the 30 iron establishments is 2266, and the cash paid these workmen is over $1,000,000.

Pursuing the plan of representing some of the more minute details of the iron business of St. Louis, we will here enter upon the Saw Works.

In the 6th volume of the *Western Journal*, page 197, in June 1851, an account was published of Lee, Gage &Co.'s Saw and Scale factory. Mr. Gage is still pursuing the Saw manufacturing business, and his establishment is now conducted under the name and style of W. L. F. Gage & Co., Empire Saw Works.

Mr. Gage has the honor of being the founder of this business in St. Louis, which, from the extraordinary cast-steel character of the Shepherd Mountain ore, may build up a Sheffield in Missouri.

Mr. Gage commenced this business in January, 1850, and encountering the thousands of difficulties, attending the pioneer, in a new country, when and where manufacturing arts were unfashionable, and importing his steel from Sheffield, England, he has built up his Empire Saw Works, and is pursuing the even tenor of his way, sending his products,—saws of every description—to Minnesota and Texas,, to Alabama, Indiana and Wisconsin, and

to all the States and Territories west of this range as far as the Great Salt Lake of Utah.

In the mean time another establishment, carrying on the Saw business, and conducted by practical men from England: Branch, Crookes & Frost, St. Louis Saw Works, has arisen in the City.

The St. Louis Saw Works are situated on the east side of Broadway, and between Harrison and Tyler streets. The grounds are one hundred feet front by 150 deep; area 15,000 square feet, value of grounds, $60 a foot.....$6,000 00
Value of buildings, about 5,000 00
Value of Engine and Machinery 8,000 00
Value of Stock on hand 11,000 00

Capital invested $30,000 00

Mr. Branch attends to the office business, and Messrs. Crookes & Frost to the Mechanical Departments, being always on hand finishing their works.

The prices of cast-steel range from 14 to 36 cents a pound. The St. Louis Saw Works used, during 1855, at the average price paid,—about 25 cents a pound,—about $25,000 worth of cast-steel; all of which was brought from England, and principally from the celebrated works of Jessop & Sons, of Sheffield.

The quantity of coal consumed at this establishment was about 50 bushels a day; price twelve cents a bushel.

The products are sold in part to the mercantile house of Child, Pratt & Co., and the manufacturing house of Kingsland & Ferguson; but some have been sold directly to supply orders from various places throughout the several States bordering on the Mississippi river.

The joint business of the two Saw Works of St. Louis, during 1855, was as follows: Number of workmen, 45; Cash paid workmen, $19,440; Products, $100,000.

LITERARY DEPARTMENT.

Geological Survey of Missouri.—1st and 2d Reports.

A Pioneer, whether in nature or science, when he makes his first explorations, should mark the most distinguishing characteristics within the field of his observations. He should start out with a freedom from abstract hypotheses and, allowing facts and truths to stand on their own intrinsic merits, he should report those facts and truths, as a basis for liberal theories, and practical speculations, which themselves, to avoid delusions, should be cautiously indulged in, until the subject of investigation is thoroughly explored, and the theories and speculations which may arise, are not only skillfully tested by known principles but practically demonstrated by additional facts, that may be discovered in future explorations, and by repeated experiments on every phenomenon which is found inconsistent with all previous conclusions.

This liberal as cautious policy is strongly marked throughout the pages of the Reports on the Geological Survey of Missouri; and, whereas, on many questions of practical importance, some bold conclusions are made, the spirit of freedom from dictation of opinion, joined with that of devotion to facts, which is peculiarly conspicuous, induces a more implicit confidence in the conclusions, however bold, which are drawn.

The absence of previously conceived hypotheses, and fine spun speculations on pending, scientific theories being acknowledged, we will at present only allude to some of the boldest conclusions stated, and on future occasions treat more minutely of the myriads of facts collected, by the chief and his assistant geologists; not being disposed to find fault on account of important facts which have not been reported, because we well know that the labor to that end is too herculean to be expected in the time employed; but desirous to turn, what has been reported, to the best account, for the immediate and perpetual prosperity of the people.

In a previous article, on the Iron Man of Missouri, we have already led the way in this direction: and we cannot refrain from here again quoting, from the Geological Report, two short sentences, which must astonish the world with their boldness, draw thousands of mechanics and capitalists from other lands, produce a revolution in Western Public Policy, and speedily establish a vast Emporium of Mechanic Arts in the State of Missouri.

We quote from pages 154 and 157: "These coal-beds can furnish 100,000,000 tons per annum for the next 1300 years."

"There is ore enough of the very best quality within a few miles of Pilot Knob and Iron Mountain, above the surface of the vallies, to furnish 1,000,000 tons per annum, of manufactured iron, for the next 200 years."

The soils, the building materials, and the lead resources of Missouri, are elaborately represented; and the copper, zinc, silver, gold, nickel, cobalt, manganese, kaolin, glass-sand and lithographic rock are noticed, together with other sources of wealth, some of which were previously known and others unknown; saltpetre is said to abound along the Southwest Railroad, but it is not reported; neither is the quality of the various coals positively determined. But a vast variety of important facts are gained, and a valuable *record evidence* is presented to the world, confirming the title to more wealth in the State than was claimed by loose *parol testimony*.

We hope to treat more fully of this work and quote more freely from its pages on other occasions. In the meantime, we would earnestly recommend every Missourian to read the INTRODUCTION which is an enlightening and spirit-stirring treatise on: "The Advantages to be derived from our Geological Survey."

The Geological corps is composed of the following officers:

Chief State Geologist, Prof. G. C. Swallow,
Chemist and Assistant Geologist, Dr. A. Litton,
Assistant Geologist, Mr. F. B. Meek,
Assistant Geologist, Mr. F. Hawn,
Palæontologist and Assistant Geologist, Dr. B. F. Shumard,
Draughtsman, Mr. R. B. Price.

Part 1st of the work, written by Prof. Swallow, fills 207 pages, and Part 2d, which contains the reports of Drs. Litton and Shumard, and of Messrs. Meek and Hawn, with appendix, embraces 240 pages, making a volume of 447 pages. The work is embellished with 68 illustrations, engraved on wood, stone and steel by Schaerff & Bro., Gast & Bro., Kershaw, Robyn and Bauer, artists of St. Louis, the most of whose specimens display remarkable skill in the draughtsman and engravers. The printing is done on firm, pure paper, in the best style, by James Lusk, Public Printer, at Jefferson City; and the whole is neatly bound, in strong covers of handsome cloth, by Fraser & McIntire of St. Louis. And thus with pride we may boast that, excepting the paper, which was made in Whippany, New Jersey, this valuable and ornamental work, octavo, costing not $2 a volume, is completely Missourian.

POETRY.

The main-spring of poetry is like the main-spring of a river, and, however paradoxical it may seem, also like the main-spring of a watch.

Like the main-spring of a river, poetry must flow freshly from nature. Like the main-spring of a watch, poetry must be subdued to art.

The poet must have a heart gushing with natural emotions. The poet must have a mind controlled by celestial order. The true business of a poet consists, in the establishment of heavenly order among earthly emotions.

The sublimest poetry ever read by man is found in the Book of Job, Byron tried to equal him, but failed with his mere human imagination; while Job employed "the inspiration of the Almighty." The fame of Byron will die with the "wreck of matter." The fame of Job will live in "immortal youth." His inspiration came through patience; and patience was Shakspear's crowning glory of Queen Katherine. As the brillint German child, Bettine Brentano, said: "Nobody learns to understand, but by the inspiration of the Holy Spirit." "By soft quieting, violent passion becomes genius." "Peace with all things makes the spirit powerful; real peace has wings, and lifts man, still in his life-time, high above the earth to heaven." Let the reader think on these eternal principles in poetry, and read their charming illustration:

THE EARLY DEAD.

BY L. L. C.

In six short months, what changes come
To loving hearts, and a happy home:
When Spring-time came with birds and flowers,
There were cherished forms in this home of ours,
Who loved to spring to our glad caress,
As flowers, when the sunbeam shines to bless;
Who carolled around us with prattling words,
Dearer than songs of sweetest birds;
Who stirred up the living fount of love,
Till it sparkled with light from source above,
And threw o'er the world's impurity
The dew of a holier charity.

When Summer wore its greenest pride,
One of our darlings faded—died—
Our brave, fair boy with his piercing eye,
And loving too, when we were nigh:
We bowed, as we felt the heavy rod,
For we knew the blow was dealt by God;
But we thought, as we gazed through blinding tears,
Of the fond dream woven for coming years,
When the dimpled feet, just taught to stray,
By guiding hands, in tottering play,
Should stand on the pulpit's sacred floor,
And lead the way to a brighter shore,
Should be to the weary hearts a light
Of joy, as they trode on the mountain's height,
To publish to all the sorrowing earth,
The peace, that came with a Savior's birth.
But God in his wisdem, deemed it best
To take him away to early rest,
And we knew it was sinful to wish him back
To life's dark clouds, and thorny track:
His short and beautiful life may prove
In its innocent joy, its memory of love,
The strongest link in the chain of heaven,
That God to our erring hearts hath given.

The summer past—We had learnt to dwell
On his early death, as best—as well;
But we turned with deeper love to her,
The frail, fair flower, a breath could stir
On its fragile stem; and trembling, prest
Our darling closer to our breast.
She came to us in the month of May,
Like its fairest buds, and sunniest ray;
nd its proudest songster cannot own
A sweeter voice than her rippling tone.
We called her, Florence, and in our home
Her gentle name has since become
A word of purity and love,
The name of a flower that blooms above.
Her heart was the blessed home of all
The lovely guests, that since the fall
To riper years are scarcely known,
But live in childhood's breast alone.
She had undoubting faith—her eye
Unshrinking, met the stormy sky,
And saw, what shunn'd our weaker sight,
The hand that guided all aright.
The joy that knows no taint of earth,
Laughed ever, in her guileless mirth,
And childhood's hope, upon her brow
Lay ever in its smiling glow,
Save when some transient grief, or fear,
Called forth the quickly starting tear;
But following close on April's showers,
May came again with smiles and flowers.
She had a richer gift, whose spell
These simple words can scarcely tell—
In its far reaching power, her heart
Of Nature seemed a lovely part:
Instinctively, she loved them all,
The bird—the flower—the insect small
That fluttered by on gauzy wing;
Her eye sought out each beauteous thing,
Unnoticed in the world's highways,
And blessed it with her childish praise.
And then, to us who sought to guide
Her little feet from paths of pride,
Forgetting, that a higher power
Sent angel guards for each dark hour—
A few kind words, or slight caresses,
A soft touch on her sunny tresses,
Would bring the love light to her eye,
And send her eager feet, to fly
On any errand we might name,
Though wearying to her slender frame.

I love to linger in this dream,
To dwell upon this happy theme,
For, if I wander on, the clouds
Of sorrow fold me in their shrouds—
Show me the rush of Jordan's wave,
And lead me to an open grave.

Still, far beyond, my Spirit's eyes
Pierce the gold-gates of Paradise,
And view the love and mercy there,
That took her from a world of care.

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Mr. H. L. Bateman, Sole Lessee and Manager of the St. Louis Theatre, with a laudable ambition, seems aiming to produce, the highest degree of elegance to which the Fine Arts are carried on the stage. His painting, music and poetry are all in tone with the high spirit and graceful refinement of his company.

Early during January, 1856, Miss Matilda Heron appeared among his scenes with that subdued simplicity and holy earnestness by which the genius of a noble soul awakens sympathetic feelings, and she swayed St. Louis like a Queen.

Her Camille was rendered with such magical effect that the audience, spell bound by her magnetic will, not only mingled their tears with hers, but joined in the hectic cough of the consumption she represented.

Such power over the imagination and the sensibilities is an important trust; and we believe Miss Heron will employ it in the elevation of the tone of the Drama, which seems to be her mission on the stage.

LITERARY NOTICES.

Mining Magazine. January, 1856, begins with the 1st No. of the 6th vol. of this work. Two series of articles, on subjects, now becoming of leading importance to Missourians: one by Wm. Truran on "Iron Manufacture," the other by Ponson on "Coal Mining," are now being published, with illustrations, in the Mining Magazine. Although this work has as yet scarcely noticed the immense and varied mines of Missouri, still, we prize it as containing information which can be turned to extraordinary account in Missouri; and believe that it will further soon do us justice. We advise every man in Missouri, and in the West, who is interested in Coal or Iron, to become a subscriber to the present volume, Published monthly by Wm. J. Tenney, 98 Broadway, New York, at $5, a year, in advance.

Hunt's Merchants' Magazine, which is well known and liberally patronized in St. Louis, comes freighted with its usual load of rich commercial articles.

DeBow's Review urges, energetically as ever the development of the Industrial Resources, &c., of the South and West.

Buchanan's Journal of Man pursues its metaphysical arguments with all its original ardor and astonishing illustrations.

The Family Magazine contains literary essays in prose and verse, with a piece of music and poetry impromptu.

The Good Templar advocates the cause of temperance in a spirited style.

The American Agriculturist is extensive in its information designed to improve the farmer, the planter and the gardener.

Southern Literary Messenger. We remember in college days how we loved to lose ourselves in abandonment to its charms; and how refreshed we were by its racy literary productions.

The January No. for 1856 is the commencement of a new series in the same style. Now is the time for its old friends to renew their deep draughts at this Pierian spring.

United States Mining Journal, published weekly by Lyon and Hillyer, 112 Pearl street, (Hanover Square,) New York; Robert Lyon, Editor; price $3 a year, in advance. This work contains a large amount of useful information on Railroad and Mining Interests, and is an Iron and Metal Dealers' Price current. We have often had occasion to quote from this work, and are indebted to its pages for some valuable items in the present number.

The American Mining Chronicle & Iron Manufacturers & Railway Journal, published in New York and Philadelphia, weekly, by M. B. Moneck & Co., 216 Pearl street, New York; Chas. H. Fisher, Editor; price $3 a year, in advance. To this work we are also indebted for valuable and entertaining information on the subjects embraced under its title, and for quotations..

Let these works be liberally patronized by Missourians, and the works will repay the patronage ten-fold.

THE

WESTERN JOURNAL

AND

Civilian

M. TARVER & H. COBB, Editors and Proprietors.

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